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**THE CHARACTERISTICS AND DEVELOPMENT OF YOUNG PEOPLE'S
INFORMATION UNIVERSES**

ANDREW KENNETH SHENTON

A thesis submitted in partial fulfilment
of the requirements of
Northumbria University
for the degree of Doctor of Philosophy

July 2002

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My biggest debt of gratitude, however, is owed to Professor Joan Day, the ex-head of my University's School of Information Studies. Without her encouragement and persuasion in the early months of 1998, this PhD study would never have taken place.

THE INVESTIGATOR - AN AUTOBIOGRAPHICAL PORTRAIT

The son of two teachers, I was born in north-east England in August 1969. I grew up in Whitley Bay, the case study town for the research project, and spent my fourteen years of early education attending three schools within the area. Two of them served as fieldwork centres for this investigation. I remain a life-long Whitley Bay resident. After leaving high school at eighteen, I spent three years at Newcastle upon Tyne Polytechnic, where, in 1990, I was awarded a BA (Hons) degree in Information and Library Studies. I developed a particular interest in child education during the course, my enthusiasm fuelled by its many modules relating to young people. Following graduation, I spent a year working towards a teacher training qualification at the University of Newcastle. In September 1992, I accepted a teaching post in a Whitley Bay first school, another organisation that would later become a fieldwork centre for the research project. Whilst my principal responsibilities lay with eight- and nine-year-olds, on occasions my duties demanded that I teach each of the five year groups within the school, thereby providing me with experience of working with youngsters between the ages of four and nine. During my time as a teacher, I attended a variety of professional development courses, most of which related to Information Technology, a subject for which I served as the school's Curriculum Coordinator. This role involved me in designing learning activities for pupils throughout the school, and many of these tasks were devoted to the development of the children's information-seeking skills through their use of resources such as CD-ROM. Although I took a year's unpaid leave of absence in 1996-97 to study at the University of Northumbria for an MSc degree in the relatively new discipline of Information and Records Management, I remained employed by North Tyneside Local Education Authority until February 1998. Having prepared my PhD proposal and gained funding from the Humanities Research Board of the British Academy, I began work on the study the following October.

ABSTRACT

Recent developments towards “the learning society” have increased the importance of youngsters acquiring skills in finding information. Research, however, has not kept pace with this progress and relatively little attention has been directed to young people’s information universes. This study is an attempt to gain greater understanding of this area. The work draws on the ideas of youngsters themselves in order to explore these universes and to examine how the universes develop during childhood. Three particular aspects have been selected for scrutiny: young people’s understanding of the term, “information”, their information needs and the methods they employ to satisfy these needs.

Essentially qualitative in nature, the study sampled 188 youngsters from six schools within a town in north-east England. Participants ranged from four- to eighteen-year-olds. The work is unique in using the ideas of youngsters of such a variety of ages to investigate, within a single inquiry, the three nominated areas. The main data collection methods were those of the focus group and individual interview, although some data was also elicited from documents.

The youngest informants typically understood information to be facts obtained from sources such as books and computers but teenagers were more open and disparate in their beliefs. A diversity of information needs was revealed. They embraced areas such as advice, affective support and skill-related, subject and consumer information. Situational factors pertaining to, for example, the amount and up-to-dateness of the information required were important considerations for some individuals. The approaches taken by informants in response to their needs were also varied, and ranged from direct observation to the exploitation of recognised sources, including books and the Internet. Needs frequently went unmet and, for many youngsters, problems during the information-seeking process were common. Even when attempting to use other people, participants were often unable to gain the information they sought. In order to help youngsters develop more effective ways of finding information, considerable changes are needed, within schools, especially. Some changes involve modifications to existing practices but others demand that the whole ethos of the learning environment be rethought.

INTRODUCTION

The purpose of this Introduction is to orientate the reader in terms of the material to follow in the main body of the thesis. It briefly indicates the subject of the work, and discusses the thesis's structure and approach. In particular, it outlines the individual chapters and explains the conventions that have been employed when citing published material, documents and transcripts of data collection dialogues.

1 SCOPE OF THE STUDY

This thesis draws on youngsters' own ideas to explore the information universes of four- to eighteen-year-olds. A key aim is to investigate how these universes develop during the period of childhood. With respect to subject foci, three areas of special interest are scrutinised - what young people believe the term, "information", to involve, what information they require in their lives and how they set about acquiring it, both with regard to the environments and providers they use and in terms of how they extract information from particular sources.

2 COMPOSITION OF THE THESIS: A SECTION-BY-SECTION PREVIEW

The work begins with an overview of "the learning society", which forms the broad context for the inquiry, and identifies the contribution that the study makes in relation to this area. The next chapter is devoted more especially to the research question, the methodology employed and the content areas and focus questions addressed. An integral part of this chapter involves exploration of the concepts underpinning the investigation and explanation of the rationale behind the definitions that have been adopted for application. Considerable importance is attached to these aspects in view of Yovits's (1975: 90) assertion that such definition is essential in establishing the boundaries of a field of study. Cognisance was also taken of Wilson's (1981: 3-4) warning that confusion is caused when terms are undefined and readers are left to discover for themselves what the researcher actually means.

That part of the thesis examining existing work which has dealt with the subject of the project consists of two overall sections, devoted respectively to knowledge that has been accumulated in relation to the thesis's topic areas and to the methods employed in previous research into these aspects. With regard to the former, particular reference is made to the findings of work that has provided insights into the more specific issues scrutinised in the project. The review draws on investigations undertaken in much of the developed world, including Europe, North America, South Africa, Australia and New Zealand. No coverage of young people's understanding of the concept of "information" is presented, however, as this is an entirely new focus of study, although, when reporting the results of the project, the thesis makes reference to a range of definitions of information that writers have offered. After discussion of young people's information needs, the sources employed by youngsters to satisfy their needs are examined in the chapter on the "where" and "what" of information-seeking, and the ways in which they are exploited are covered in separate "how" chapters allocated to paper materials and electronic sources. A review of models enables the selection of sources and their actual use to be seen alongside the nature of the more holistic information-seeking process. In their entirety, these chapters provide the background knowledge against which the empirical study was conducted. The manner in which they address the project's subject foci is summarised below.

**FIGURE A: RELATIONSHIP BETWEEN THE NOMINATED CONTENT AREAS AND CHAPTERS
WITHIN THE THESIS EXAMINING EXISTING WORK**

| Content area within thesis | Chapter of thesis examining existing work |
|------------------------------------|--|
| Perceptions of term, “information” | <i>No previous research relating to young people</i> |
| Information needs | Chapter Three - Results of Work Examining Young People’s Information Needs |
| Information-seeking | Chapter Four - Results of Work Examining the “Where” and “What” of Young People’s Information-seeking Chapter Five - Results of Work Examining the “How” of Young People’s Information-seeking in Relation to Paper Sources Chapter Six - Results of Work Examining the “How” of Young People’s Information-seeking in Relation to Electronic Sources and Retrieval Devices Chapter Seven - Models of Information Behaviour |

The second part of the literature review, which scrutinises the methods employed in past work, includes discrete chapters pertaining to investigations of information needs and information-seeking. Although these dimensions are not specifically rooted in the study’s focus questions, since many of the characteristics of the project’s design emerged from previous work, the techniques that have been used should be seen in this context.

Chapter Ten addresses the study’s methods as they were employed, and assesses the merits of alternatives which were rejected after consideration. The immediately succeeding chapters attempt to place the project on the positivist/naturalistic continuum and indicate the measures that have been taken to ensure that the research is trustworthy. In terms of the former, no claim is made that the investigator is pursuing within this project “pure” naturalistic inquiry as explicated by, for example, Lincoln and Guba (1985). In order to convey to readers his particular position on the positivist/naturalistic spectrum, the researcher considers the characteristics of the study against fourteen features that may be regarded as typical of naturalistic work. Since qualitative research is often attacked on the basis of its trustworthiness, it was thought important, in the next chapter, for the specific tactics employed by the investigator to tackle this area to be dealt with directly. Maykut and Morehouse (1994: 152) recommend that discussion of the research design should include a section on this subject. This account is followed by operational detail of the execution of the research design in the field.

To enable the findings to be seen within the local context, background data is then offered on the town in which the research was undertaken, the public libraries within and around the area and the six schools serving as fieldwork centres. Much of the remainder of the thesis is devoted to three chapters of “first-order synthesis” which report the results of the study. These examine respectively young people’s understanding of the term, “information”, their information needs and their information-seeking methods. Three dimensions are addressed in each chapter:

- a) the types of ideas, needs or actions articulated by the youngsters, illustrated with actual examples;
 - b) the prevalence of the types, with particular emphasis on the ages of the young people reporting them.
- Readers will notice variations in the detail of the data provided in the “prevalence charts” that are presented. Where relatively small numbers of informants are involved, the charts include references to

individual youngsters but, where the numbers are larger, a less specific, more summary-oriented approach is taken, both as a consequence of necessity and in order to ensure clarity;

- c) the relationship between the findings of this study and those reported by previous researchers. Thus, each of these chapters provides not only a statement of the project's results but also a discussion of their wider context.

All three "results chapters" conclude with a summary outlining the investigation's key findings in terms of the area under scrutiny.

The next two chapters may be considered the products of "second-order synthesis", as they form the outcome of an analysis of the material created in the original synthesis. The first such chapter presents models which unite results relating to two of the three content strands of the project, those concerned with information needs and information-seeking. Kuhlthau (1999b: 12) attaches particular importance to the production of models, arguing that their development is pivotal in switching the emphasis of a project from the specific situation at hand to the representation of a more general phenomenon that can be investigated in other contexts. One major, macrocosmic model and four microcosmic models, smaller in scope and limited to youngsters' use of books, CD-ROM, the Internet and other people respectively, are offered. The models are followed by a grounded, developmental picture examining how, in the study, patterns in relation to each of the three content areas have been seen to vary in youngsters of different ages. Since the researcher employed schools as the primary sample units when conducting the fieldwork, it was considered appropriate to retain the first - middle - high school divisions when outlining changes within youngsters. Where there is development within a school phase, progression is explained in the individual section but in some cases, especially high schoolers' understanding of the nature of information, no age-related patterns could be detected and the group is discussed without reference to particular year-by-year changes. The fact that the developmental picture is presented in terms of the three educational phases should, not of course, be assumed to imply that, as youngsters move from one stage to another, their ideas, needs or behaviour necessarily change immediately. Furthermore, the comments made in relation to a given educational phase should not be considered standalone. Rather, they frequently build upon observations made in relation to earlier stages.

The thesis concludes by offering recommendations for future research and practice, and by presenting a reflective review of the research activity that was carried out. Although it is fairly unusual for a whole chapter to be devoted to the latter, Birley and Moreland (1998: 148, 150) believe that such a section is an essential part of the final work, with the investigator demonstrating not only his or her discoveries with regard to the subject matter but also his or her own learning experiences that have resulted from the research process.

3 THE "AUDIT TRAIL": CONVENTIONS APPLIED WITHIN THE THESIS

The manner in which sources of information utilised in the study, including published material, transcripts of conversations with informants and documents relating to the participating schools, are cited was principally determined by two factors:

- a) the need to provide an adequate "audit trail". This ensures that any scrutineer can verify that the findings reported and conclusions drawn are based on actual data, which can be revealed on demand. Yin (1994: 98-99) suggests that the provision of a chain of evidence increases the study's reliability, and Lincoln and Guba (1985: 283) make a similar argument;

- b) the need to maintain the pseudonymity of both the individuals providing data and the schools serving as case study centres. From the outset, fieldwork was undertaken on the understanding that this condition would be met.

3.1 Published material

In order to provide as thorough an “audit trail” as possible, where specific information or direct quotations are extracted from published materials the main text of the thesis refers the reader to the appropriate page number(s) as well as to the source itself. In past library and information science research papers relating to young people, a similar approach has been taken by Amey (1985b, 1986), Fourie (1995, 1996), Fourie and Kruger (1994, 1995) and Buck, Cassidy and Eichenlaub (2000). Within the thesis, exceptions to the convention include instances involving the citing of individual conference papers whose pages are unnumbered and the majority of documents published electronically, on the World Wide Web. In the latter case, their format renders the quoting of page numbers impossible except on the rare occasions where the text is demarcated into pages. Elsewhere, a year reference alone is given in the thesis’s main text only when a theme which runs through a whole work is discussed or when the source is a single-page article.

3.2 Transcripts

The protocols used for referencing transcripts of dialogues conducted for the project are based on those employed by Rudduck and Hopkins (1984: xii). A similar citing system is utilised whether the words of pupils, school staff, public librarians or Local Education Authority personnel are involved but the type of details supplied varies according to the nature of the informant.

3.2.1 Pupil individual interviews and focus groups

Whilst maintaining pseudonymity, the transcript identifier stated in the main text offers the reader actual details of the data collection dialogue in which the ideas quoted or paraphrased were expressed. This information includes the year group or year groups of the pupil or pupils contributing the data, the coded name of the school in which the conversation took place, the type of dialogue and the transcript’s running number. Where the session was a focus group discussion, and youngsters of different ages were brought together, the age of the particular pupil whose words are being quoted is not apparent from the transcript identifier. In these instances a superscript figure provided next to the informant’s name indicates the year group of which he or she was a member. Appendix Eight offers fuller information on each data collection session.

A particular dilemma encountered by the researcher lay in determining the extent to which the quotations of youngsters’ words within the thesis should reflect their actual speech. Several of the youngest informants exhibited speech immaturities, using words such as “somethink” (for “something”) and “bruvver” (for “brother”). There were youngsters of all ages who talked carelessly, dropping word endings, and some occasionally employed dialect words, such as “worr” (for “our”). Here it was decided that transcripts should record the formal English equivalents of these words. For this reason, the words of a transcript may not match precisely what was heard on the tape recording. Whilst this may distance the reader from the actual speech of the youngster and reduce some of the study’s naturalism, it renders the informant’s meaning more readily comprehensible.

3.2.2 Interviews with adults

The system for citing details of interviews with adults is closely based on that used with regard to youngsters, although some of the details supplied in relation to the latter are unsuitable. Where the informant is an adult within a school, the transcript identifier in the main text of the thesis gives the role of the member of staff contributing, the coded name of the school and the transcript's running number. Small variations were introduced when creating transcript identifiers for interviews with staff in public libraries and LEA personnel.

3.3 Documents relating to specific schools

Where documents relating to individual schools were to be cited, the need to maintain the pseudonymity of each organisation clashed with the researcher's desire to maintain a comprehensive "audit trail". Before fieldwork commenced, each Headteacher had been provided with an assurance that no references would be made in the thesis to the actual name of any school. If, however, the documents made available by the institutions to enable the compilation of contextual data were cited in a similar way to published material, such citations would betray the identities of the organisations. It was eventually considered that the most suitable course of action lay in indicating, within the main text, the nature of the sources of the information that had been provided but not citing them in the bibliography. Instead, in Appendix Five, the documents consulted for information about each school have been listed according to their type but their actual titles remain unspecified. Where school-related information was obtained from outside sources, such as council materials, and these covered a range of schools, they are referenced normally and included in the bibliography as they are of a more general nature and individual schools cannot be identified from the citations.

PART I:
THE WIDER CONTEXT AND NATURE OF THE STUDY

- Chapter One - Young People and “The Learning Society”: The Societal Background to the Study
- Chapter Two - Methodology and Study Issues

CHAPTER ONE
YOUNG PEOPLE AND “THE LEARNING SOCIETY”:
THE SOCIETAL BACKGROUND TO THE STUDY

This opening chapter considers the wider context for the study by exploring the concept of “the learning society” and examining evidence of its existence. Particular emphasis is given to recent developments that have led to the growth of “the learning society”. The chapter also assesses the relevance of the investigation that has been undertaken to the concept and highlights practical benefits that may accrue from the work.

1 “THE LEARNING SOCIETY”: A DEFINITION

“The learning society” may be regarded as one in which individuals, in exercising different roles, undertake learning throughout their lives, for a range of purposes, in a variety of settings, across a diversity of subjects and using materials in an assortment of formats, often on their own initiative and without reliance on direct teaching. As Raggatt, Edwards and Small (1996: 1) note, it is the individual who takes responsibility for his or her learning and selects what, where and how to learn.

2 KEY CHARACTERISTICS OF “THE LEARNING SOCIETY”

2.1 Independence of teaching and learning

2.1.1 Early development

The concept of “the learning society” is neither new nor peculiar to the context of IT. Indeed, its key features with regard to self-education are implicit in Andrew Carnegie’s late nineteenth century vision that libraries should be “a working man’s university” (Campbell, 1997: 44). More recently but before receiving general acceptance, the term itself was employed by Husén (1974) as the title for his examination of the nature of schools and the direction he believed they should take in the future. In this work, Husén (1974: 15-16, 20-21) decried the conventional paradigm of equating learning with traditional teaching and drew attention to the incongruity between the abstract/verbal exercises taking place in the classroom and the printed/spoken word in the world at large. Fifteen years later, the American Library Association (1989: 95) made similar comparisons.

Husén (1974: 19-20, 23) further believed that, with life outside school as rich in information as that within it, schools must equip pupils with an “armoury of skills” which provide them with the ability to develop competence in dealing with the information flow in society. According to Husén, the growth of information providers such as newspapers, magazines, television and external agencies has resulted in schools partly relinquishing many of their long-standing information-providing responsibilities, thus increasing the importance of schools fostering in their pupils the skills necessary to exploit these external sources. Sked (1989) implicitly acknowledges the wide-ranging nature of modern information provision and recognises that specific strategies must be employed in schools and their libraries to prepare pupils for the “autonomy of learning” that is a feature of today’s society.

2.1.2 Recent innovations

Husén's work outlined the rudimentary characteristics of the developing "learning society" at the time of his writing. Since its publication, however, changes in education, shifts in the teaching of Information Skills and innovations in IT have all raised even further the profile of pupils' skills in "learning how to learn".

2.1.2.1 In education

2.1.2.1.1 The National Curriculum, the "Literacy Hour" and the "Key Skills" initiative

In the late 1980s, McDonald (1988: 40) asserted that "expectations about where to locate information and how to find answers to questions are formed during young years". Today, however, pupils' actual *skills*, rather than mere *expectations*, are systematically developed within schools. The National Curriculum, introduced in phases from September 1989 and followed by every maintained school, provides a legal entitlement for all pupils from five years of age to receive teaching in Information Skills, primarily within the subject areas of English and IT. Although the National Curriculum has undergone two revisions, the teaching of Information Skills has remained throughout and, in testimony to their continuing importance, many have now been incorporated into the Government's "Literacy Hour" initiative for children aged between four and eleven. This was implemented by schools in September 1998. Unlike the National Curriculum, the "Literacy Hour" is, officially, non-statutory. However, as Powell (1999: 8) explains, schools deciding against its adoption "had to demonstrate that their schemes of work were as detailed and comprehensive as the strategy's objectives and that high standards were being achieved by pupils. In reality, very few schools nationally chose to 'opt out'". Scrutiny of the National Literacy Strategy's framework (Department for Education and Employment, 1998b: 18-56) reveals a wide range of Information Skills in which it is recommended that young people's abilities should be developed. They include those associated with the exploitation of specific information sources, the use of generic tools, the execution of strategies for finding and using information and the employment of higher order reading skills.

Most recently, the "Communication" element within the Government's "Key Skills" initiative (Qualifications and Curriculum Authority, 2000), which extends into post-sixteen education and was introduced for teaching in September 2000, has also indicated particular Information Skills that should be inculcated in pupils. At the highest level, these include the skills of interpreting and evaluating "information from a variety of sources, including electronic".

2.1.2.1.2 General Certificate of Secondary Education

Through its emphasis on regular coursework, the GCSE, which was launched in September 1986, demands that pupils use their Information Skills in the delivery of essays, reports, portfolios and practical tasks the marks for which contribute towards the final award. It is an indication of the significance of the shift from the type of abstract learning so condemned by Husén to the more "hands on" approach of the GCSE that, in advance of its implementation, the Library Association (1986) considered it necessary to produce a guidance note for libraries specifically explaining the implications of the new examination system. The document also describes, via examples taken from the GCSE's national criteria and assessment objectives, the information-related skills required by pupils when studying a range of subjects. The introduction of this examination is, perhaps, one of the most obvious ways in which the world within schools has been brought closer to that of

wider society. Nevertheless, sceptics such as Resnick (1987: 13-20) and van der Zee (1996: 172, 177) draw attention to continuing worldwide disparities between learning in schools and that outside.

2.1.2.2 In programmes of library instruction

According to Kuhlthau (1988c: 51), preparations for lifelong learning begin as soon as children realise that libraries can provide the information necessary to meet their needs and, increasingly it appears, the library instruction offered in schools seeks to promote skills and thinking styles that may be used throughout adulthood. Kuhlthau (1987a: 23-24) and Eisenberg and Brown (1992: 104) recognise a recent shift of emphasis in the teaching of Information Skills in the school library. They outline the movement away from attention to specific sources and retrieval systems towards “process” programmes characterised by a more widely relevant, problem solving orientation. Mancall, Aaron and Walker (1986: 20) consider that the key difference between the old and new approaches is that the former is library-centred and the latter information-centred. Rogers (1994: 1), too, remarks that, in the pre-1980s era, the Information Skills taught were generally those relating to library “user education”, and McDonald (1988: 32) describes how, for many years, the skills were taught in isolation by school librarians. An early indication of changes in the direction of library skills instruction appears to have emerged with the development, in 1980, of the “Pooh Step-by-step Guide to Writing the Research Paper” (Deweese, 1987: 34-50). Rather than being presented as individual tasks, library skills were here taught as *applied* skills within a series, with the ultimate goal of producing an assignment report. The results of investigations by Deweese (1987: 25) suggest that instruction in this form was more effective than traditional methods. Nevertheless, the switch in emphasis appears not to have been universal. Even in the mid 1990s, Vandergrift (1994: 42, 44) wrote of the resistance of some school administrators as well as school librarians to moving away from the traditional type of library skills instruction that had been employed for years.

Although commentators disagree on both the exact nature of the skills that should be inculcated and the stages in pupils’ lives when they should be taught, there is widespread support for the ultimate vision of learning described by Sheingold (1987: 80), who regards a library as an “apprentice’s workshop for thinking”, with the youngster employing inquiry skills to use the available traditional and multimedia resources when carrying out research, consulting, if necessary, the librarian who guides him or her through the processes of finding out. Indeed, the principle proposed by Mathews, Flum and Whitney (1990: 170), in their list of ten library needs for children, that youngsters should gain an early grasp of the essential skills that are needed for research in their adult, as well as school, lives has now become generally accepted as an ideal aim.

2.1.2.3 In IT

2.1.2.3.1 The computer as an information source and channel

Husén’s assertion that the development and growth of new information sources reduce the exclusivity of the teacher as an information provider takes on a new dimension in the face of innovations in IT. Indeed, at the onset of the new millennium, Ralph Tabberer (2000), Chief Executive of the Teacher Training Agency, believed that the “increasingly formidable advance of ICT means that teachers no longer have a virtual monopoly of schooling pupils from five to sixteen”. Howells (1997: 180) recognises that, whereas in the past the learning materials beyond direct teaching that were provided by schools were limited to the school library

and those made available by the teacher personally, today CD-ROM and the Internet offer pupils access to a far greater range of sources. The widespread use of CD-ROM systems in the home has increased domestic access to encyclopedias and similar works of reference, including sources devoted to specific subject areas, and the convergence of telecommunications and computer hardware has facilitated the development of a National Grid for Learning, which, the Department for Education and Employment (1997: 4) claims, will ultimately provide the workplace, libraries, museums, art galleries and street terminals with access to a diversity of learning resources. In addition, many households have made their own arrangements for connection to the Internet, which takes the user beyond the confines of even nationally-provided information. Thus, the nature of the computer has evolved from a programming and problem solving instrument to an information provider and channel. Its importance in this role may be gauged from the fact that Gwen Evans (2000), Deputy General Secretary of the Association of Teachers and Lecturers, spoke at the Union's education conference in 2000 of the dangers of "ICT exclusion" or a "digital divide" separating those who could afford computers and those who could not. These comments underline the growing pervasiveness of IT in home as well as school settings. The particular relevance of the information potential of home computers to the concept of "the learning society" is apparent in the Organisation for Economic Cooperation and Development's (1995: 3) assertion that they provide an "empowerment" for pupils to "take control of their own learning". This principle may be seen as pivotal to "the learning society".

2.1.2.3.2 Teletext

When Husén's study was published, Teletext in Britain was embryonic. Indeed, the first such service, "Ceefax", pioneered by the British Broadcasting Corporation, began public broadcasting in the same year that Husén's book appeared. Figures provided in personal correspondence by BBC News (18th November 1998) state that today, however, analogue "Ceefax" is believed to attract a weekly audience of approximately seventeen million. All five terrestrial television channels and many cable and satellite stations now provide their own Teletext services, thereby bringing a wealth of up-to-date information on a variety of topics to all homes with suitably equipped television sets. BBC News suggests that 66% of United Kingdom households now have access to such sets. According to its own information broadcast on 11th September 2001, the Teletext service of Independent Television and Channel Four is at present the largest in the world and the most popular in the UK. It claims to offer, in a typical day, three thousand "frames" of information, with fifty thousand updates, via twenty-six transmitters. With the onset of digital television, a new generation of Teletext services is currently in development.

2.2 Learning throughout life, for different purposes and across different disciplines

If the first key characteristic of "the learning society" is that much learning is the result of processes unrelated to direct teaching, the second is its ongoing nature, which is unrestricted to particular subject areas. According to Campbell (1997: 43), the shared assumption among delegates attending the 1996 Joint Weekend School of the Northern Branches of the Library Association and the Association of Assistant Librarians devoted to "the learning society" was that "learning is a continuous process, undertaken by people of all ages and in all walks of life for pleasure, self-development or to meet career demands... learning does not begin at five and end with GCSEs or a degree".

As long as twenty-eight years ago, Husén (1974: 23) recognised that the application of the Information Skills he so advocated must be an iterative process, since, in an information-rich society, people would need to re-educate themselves throughout life. Continuous learning, Husén argued, is essential if the individual is to cope in the modern world. The concept of Information Skills providing “coping strategies” for the individual remains relevant in the twenty-first century and has more recently been highlighted by the Department for Education and Employment (1998a: 7-8), which suggests that the ability to learn throughout one’s life is an inevitable demand of the “rapid change and challenge of the information and communication age”. It considers continuous learning to be a prerequisite for individual and collective prosperity, for an effective workforce and for the maintenance of culture, spirituality and citizenship. These themes are echoed by the Organisation for Economic Cooperation and Development (1995: 3), which asserts that self-education is vital if one is to seize economic opportunities and function successfully as a consumer and citizen. The European Commission (1996: 6-8), too, argues that people are best equipped to understand changing circumstances and their meanings by building a broad base of knowledge, whilst they may increase their employability by maintaining an up-to-date vocational knowledge. Even though the contexts in which individual authors and corporate bodies consider Information Skills to be particularly necessary may vary, all acknowledge them to provide the means for the individual to adapt to a changing society. Perhaps the most succinct summary is provided by Raggatt, Edwards and Small (1996: 3), who recognise that continuous learning contributes towards economic and labour market objectives, as well as cultural, social and equitable goals.

The most forward-looking argument is advanced by Ranson (1994: 105, 110-13), who suggests that learning endows each individual with the sense of agency and responsibility necessary to effect a new moral and political order based on justice, citizenship and participative democracy. In this way, rather than merely “coping” with developing society or adapting to it, under Ranson’s model learning provides the inspiration for individuals to help shape it. His argument is consistent with the observation of Rogers (1992: 59-60), who recognises that, to some, a key purpose of education is as an agent for social change. Although not as radical in its vision, the Department for Education and Employment (1998a: 8, 10-11) also notes the wider benefits of learning, highlighting the social cohesion, responsibility and identity fostered within communities by learning, and the way in which learning shapes the values that are transmitted from one generation to another.

3 RELEVANCE OF THE STUDY

In the face of the changes in education and the increasing significance of information and learning within adult society, the importance of making a detailed investigation of young people’s attitudes and perceptions of their behaviour with regard to information is greater than ever before.

As has been discussed, youngsters in today’s world of IT are exposed to more non-teacher-based learning resources than their counterparts in any previous era. Fryer (1997: 18) suggests that, as a result of continuing innovation in the fields of broadcasting, computing and communications, learning via IT, at home and outside “conventional educational establishments”, will become even more widespread in the future. At school, pupils are now required to develop Information Skills from a young age. Indeed, the teaching of such skills for the exploitation of electronic and traditional sources has a centrally-prescribed, even legal, basis within schools via the stipulations in the National Curriculum detailing the Information Skills to be taught.

Similar recommendations are made in the framework document for the “Literacy Hour” (Department for Education and Employment, 1998b: 41).

It is thus during childhood that people are formally trained in the skills that they will use throughout their lives. By the time adolescents undertake their GCSE assignments, their ultimate qualifications are partially dependent on their ability to demonstrate what Rogers (1994: 33) terms “highly developed Information Skills”. Current indications suggest that, within schools, the profile of IT-related Information Skills, in particular, will continue to rise. In the late 1990s, the Department for Education and Employment (1997: 24-25) stated that by 2002 it aimed to have established measures for assessing the competence of school leavers in this area and suggested that the place of these skills within the curriculum should be subject to reassessment in the light of developments in the Grid for Learning. Most recent moves in this direction have involved the implementation, in September 2000, of a “Key Skills Qualification” for post-sixteen pupils, with IT one of several areas identified for coverage (University and Colleges Admissions Service, 2000: 9).

As tomorrow’s adults, today’s children will be required to exercise a range of Information Skills to ensure personal success, professional development, responsible citizenship and recreational enjoyment throughout their lives. Shifts in the emphasis of Information Skills taught in schools serve to demonstrate the importance attached by educators to youngsters developing transferable, problem solving abilities that they may use lifelong, and one of the goals defined by Doyle’s (1992: 3) report to the USA’s National Forum on Information Literacy outlines how, even at a pre-school stage, preparations for children to become lifelong learners should be made. In Britain, it was the Government’s concern with preparing pupils for lifelong learning that formed one of the motivations for introduction of the aforementioned post-sixteen “Key Skills” courses (University and Colleges Admissions Service, 2000: 32).

Yet, research into young people’s information behaviour has not kept pace with the innovations that have contributed to the development of “the learning society”. The lack of investigation and consequent exiguous knowledge of youngsters’ information needs have been observed by many researchers and commentators over the past two decades. Marshall (1982: 54), Fitzgibbons (1983: 9), Amey (1986: 12), DuPree (1989: 3), Walter (1994: 111, 112), Kinnell (1994: 84, 85), Fourie (1995: 129) and Hayter (1998: 11) all draw attention either to how little is known about such needs or to the necessity of learning more. Over a similar period, concern has also been expressed in relation to the limited coverage given in research to young people’s information-seeking (Mancall, 1984: 79, Moore, 1988, Moore and St. George, 1991: 161, Busey and Doerr, 1993: 78, Fourie, 1995: 129, Chelton and Thomas, 1999: 7).

During the year in which the thesis project commenced, Gross (1998: 42) suggested that studies into children’s information behaviour were so meagre that researchers were forced to rely on work undertaken with adults to develop an understanding of this area. A range of commentators assert, however, that, whether the focus lies in information needs or information-seeking, such reliance is unwise. Differences between the two groups in the former area are highlighted by Druin and Solomon (1996: xii), who write, “Young people have their own likes, dislikes, curiosities, and needs that are not the same as their adult teachers or parents.” Higgins (1994: 383) concurs, arguing that some of those needs experienced by a youngster are not felt by grown-ups, and Burton (1998: 111) indicates that requirements stemming from school assignments, especially, are unique to young people. Conversely, it may be argued that needs such as those relating to “reskilling” and participation in democratic processes are unlikely to be felt by those yet to attain adult status.

According to Hirsh (1997: 726), disparities emerge not only in relation to information needs but also in terms of the research approaches, cognitive abilities, developmental levels and skills of adults and youngsters respectively. Lazarus and Lipper (1994: 16), Druin and Solomon (1996: xii) and Hirsh (1997: 726) are among those who argue that researchers cannot attempt to develop an understanding of children's information-seeking from that observed in adults since they are inherently different. In particular, Druin and Solomon warn of this danger in relation to electronic materials, indicating that youngsters cannot simply be assumed to be "short adults". Jacobson (1991: 112) believes that this tendency was especially apparent in the early pioneering of electronic information sources for young people. Writing at the beginning of the 1990s, she observed, "Until recently, designers seem to have assumed that products initially developed for adults would also meet the needs of children and young adults" when instead they should have been at least adapted and modified specifically for them. Indeed, work in the field by Hirsh (1999: 1282) has drawn attention to the problems faced by youngsters when they are required to use electronic sources that assume adult vocabularies and knowledge bases.

In the public library environment, Burton (1998: 110) explains how different skills are required of the librarian depending on whether the inquirer is a child or an adult, because of variations in their communication abilities. Moreover, Tyerman (1989: 393) has shown how problems have arisen when subject headings originally intended for adults are used in the classification of children's non-fiction materials. In a more general context, the work of Kuhlthau et al (1990: 18-27) highlights important variations in the attitudes and behaviour of high schoolers and their older counterparts seeking information in academic and public libraries. The team's findings lend weight to Kinnell's (1994: 84-85) suggestion that, despite a certain convergence between the experiences of adults and adolescents in the world today, the latter's "information seeking behaviour is likely to be different from that of adults".

By involving youngsters first-hand in the collection of data in order to gain an understanding of their information needs, the approaches they take to satisfy these needs and the problems they encounter in specific situations, the work aims to offer information providers and educators within the case study town illumination that may lead to an enhancement at the point of delivery of the services they offer at a time when young people's requirements for and experience with information from a range of different sources are greater than in any previous era. The findings themselves are supplemented by recommendations, many of which are formulated specifically for practitioners working with youngsters. The underlying practical aim of the project is threefold:

- a) to help to forge increased congruence between the features of Information Skills teaching programmes or information services/systems for use by young people and the tendencies of youngsters themselves. In a library context, Liesener (1985: 16) writes, "An attitude that is more understanding of clients' information seeking behaviour will be necessary if more clients are to be served and if students... are to develop the higher level problem solving skills which require more sophisticated Information Skills and knowledge." Similarly, deeper awareness of youngsters' information needs and their implications will enable greater tailoring of the content provision of such services and systems to meet their requirements. Indeed, the American Library Association's "Statement of Competencies for Librarians Serving Children in Public Libraries" (American Library Association, 1999) ranks knowledge of the needs of children second only to knowledge of "theories, practices and emerging trends of librarianship" in the delivery of an effective

service. The importance of examining information-seeking specifically from young people's perspectives, in the manner attempted by this study, is emphasised by Amey (1986: 9), who observes, "To properly understand and serve adolescents we need to look at their behavior in their terms, not ours." Gross (2000: 10) believes that an understanding of the phases of information behaviour associated with a youngster's development - which forms another key dimension of the project - is also of paramount importance when designing library services for young people;

- b) to indicate areas in which youngsters typically experience information-seeking problems, and to offer strategies for either their avoidance or remedial action. Such strategies may underpin programmes of Information Skills developed in the schools, thereby helping to ensure that future pupils develop a firmer foundation upon which to gain the further skills that are required if they are to be successful lifelong learners in an age when personal and professional development in adulthood is increasingly dependent on these abilities;
- c) to identify, where appropriate, successful approaches used by youngsters in the hope that these may be taught to other young people who may then enjoy similar success. Eaton (1991: 80) pursues a comparable aim in her own research devoted to the importance of spatial awareness for youngsters making shelf searches in libraries.

CHAPTER TWO

METHODOLOGY AND STUDY ISSUES

This chapter defines the scope of the study by outlining the methodological approach adopted, the case study strategy employed and the subject areas and questions under scrutiny. The nature of the group targeted for investigation is discussed, and the concepts underpinning the inquiry addressed through reflection on past work and through the statement of the definitions that have actually been applied in the project.

1 THE METHODOLOGICAL APPROACH

The research question may be stated as follows:

“With regard to information, how do youngsters’ attitudes and behaviour as conveyed through their own perceptions change during the years of childhood?”

Few would argue with the assertion of Wildemuth (1993: 451) that the methodology employed within a project emerges from the nature of the research question. Ingham (1984: 9), Hirschheim (1985: 33), Patton (1990: 39, 48), Grover and Fowler (1993: 242), Layder (1993: 107) and Merriam (1998: 32, 41) are among those who also adhere to this view. Rossman and Wilson (1985: 630) dub advocates of this approach “situationalists” - those who adopt certain methods which, they believe, are most suitable for specific situations. In broad terms, Maykut and Morehouse (1994: 26) suggest that a study which derives its subject from human experience, as this work does, is of a qualitative nature and demands the use of associated techniques. Indeed, according to Moore and St. George (1991: 163), any investigation of youngsters’ information retrieval strategies and thinking processes is “bound to result in qualitative rather than quantitative data”, a statement that appears particularly appropriate in relation to this project, as it was decided that the words of youngsters themselves should form the raw data for the study. Qualitative data collection and analysis methods were thus selected to allow detailed exploration of the contexts of the young people’s attitudes and behaviour and of the manner in which they had constructed meaning from their experiences. In this respect, the research approach adopted may be considered *hermeneutic*, as well as qualitative, since the work is concerned with the individual circumstances of the youngsters under scrutiny. Windschitl (1998: 31) draws attention to the way in which qualitative techniques are also conducive to the development of grounded theory, which, again, forms a key aim of the project. The study makes no attempt to verify an a priori theory that has been either devised or selected by the researcher.

2 THE CASE STUDY STRATEGY

2.1 The nature of a case study

Within the qualitative domain, Yin (1994: 5-6) considers that the type of interrogative used in the research question directly determines the overall strategy to be adopted. He argues that a case study approach is especially fitting for investigating “how” questions in which the researcher does not seek to exercise control over behavioural events and when the subject focus is a contemporary phenomenon within a real-life situation. Both characteristics are inherent in the research question and the topic itself. Analysis of the literature, however, reveals that a wide range of definitions has been applied to the term, “case study”, and, as Lincoln and Guba (1985: 360) and Merriam (1998: 26) observe, there is little agreement on what constitutes a project

of this type. The most pertinent definitions of a case study, in the context in which it is used here, appear to be those offered by Allison (1996: 15) and Hammersley (1989: 93). On a basic level, the former considers them to be “in-depth studies of particular events, circumstances or situations which offer the prospect of revealing understandings of a kind that might escape broader surveys”. Here, the matters under scrutiny take the form of attitudes and behaviour with regard to information. More specifically, Hammersley asserts that case studies may be considered to involve “the collection and presentation of detailed, relatively unstructured information from a range of sources about a particular individual, group or institution, usually including the accounts of subjects themselves”. Hammersley’s definition addresses the key characteristics of this study, with youngsters within a restricted geographical location forming the “group” of interest. It is this group that may be understood to be the “case”. The project may also be regarded as a case study of the “embedded” type outlined by Yin (1994: 41) in that it deals with a particular phenomenon - the development of young people’s information universes - yet involves scrutiny of the ideas of individual youngsters. Each informant contributes data about his or her life that is integral to an overall understanding of these universes. Perhaps the most apt description of the work may be taken from Fidel (1993: 224). It is both holistic and case-oriented - insight is gained through exploration of unique cases, with the final work taking into account *all* the emerging themes.

2.2 Justification for use of the technique

Many characteristics render the case study an appealing technique for adoption in this project. Moore (1987: 47) writes that the method is suitable for the examination of a particular issue in depth, whilst concentrating resources in a limited area, and Bell (1993: 8) believes it to be especially applicable to a project undertaken by only one person. In view of the advanced level that a PhD demands, the restrictions in time and resources available to the investigator and the individual nature of the work, the case study approach proves attractive. Yin (1994: 8) also draws attention to the “unique strength” of the case study in allowing the inclusion within the research of a wide variety of sources of evidence. Denscombe (1998: 31) goes even further and asserts that, in investigating the phenomenon of interest, the researcher may use “whatever is appropriate”. This characteristic provides the case study with an inherent flexibility which ultimately proved useful in this project, as, during data gathering, the investigator was able to introduce new material from sources that he had not anticipated.

2.3 Extent of previous case study work in library and information science (LIS)

The use of the case study is well established in LIS research. Indeed, as early as 1980, Busha and Harter (1980: 153-54) were able to cite a range of examples of case study projects that had been carried out in the field. More recently, Callison (1997: 349) has shown there to be a dramatic increase in its employment during the 1990s by researchers investigating issues relating to school libraries. Kuhlthau has been a leading figure in this trend. Gross (1998: 64) also notes that the case study has come to form the “major research approach” when investigating children’s information retrieval behaviour.

The current popularity of the case study appears indicative of a wider movement recognised by Callison (1997: 349, 352) towards qualitative methods. He observes the relative decline of techniques based on questionnaires and citation analysis to investigate information behaviour in favour of in-depth interviews, which allow the collection of more detailed data in relation to the decisions and actions of the user. Wilson

(1994: 35), too, notes the frequency with which qualitative methods are used, arguing that since the mid 1970s they “have become almost the standard in information needs research in the UK”.

3 CONTENT AREAS

In order to operationalise the research question, three specific areas were selected for coverage:

- a) youngsters’ understandings of the term, “information”;
- b) their information needs as they view them;
- c) young people’s descriptions of how they seek information to satisfy these needs using the full range of resources at their disposal.

The fact that these three content areas are dealt with in a single project renders this work unique. The scope of the research, in terms of the content areas included, is deliberately broad. This is to enable a big, holistic picture of the youngsters’ information universes to be seen. The reasoning for this approach is as follows.

- a) Key findings in relation to large areas of these universes may be discovered. It was feared that concentration on a single, narrow aspect would not allow the issues raised to be seen in proper perspective and they would emerge only as features of the aspect addressed, with a consequent reduction in their overall importance. Furthermore, major issues may be omitted altogether simply as a result of lack of any attention being paid to them by the project.
- b) The manner in which the issues identified in relation to a given strand may impinge on others that have arisen when covering the remaining aspects may be explored. Formative data analysis allowed the investigation of associations between emerging themes while the fieldwork was still taking place, as well as the identification of questions that could be tackled in a future study.

According to Denscombe (1998: 31), the case study approach is especially well equipped to examine how individual strands of a phenomenon affect each other, as it allows the investigator to collect sufficiently detailed data “to unravel the complexities of a given situation”. He believes these interrelationships to be particularly important when *processes* are under scrutiny. In this project, the “processes” may be considered to be the methods used by the youngsters when acting upon their information needs.

Much research devoted to young people’s information behaviour is very narrow, concentrating on the use of particular resources, such as those available in a certain library or even a stipulated CD-ROM package, in response to a particular need, which is often imposed by the teacher, and the findings of the study are thus limited in scope. This project employs a broader canvas by scrutinising young people’s attitudes to information, their information needs in a range of areas and their information-seeking activities in a variety of environments to meet their requirements.

The first strand, relating to youngsters’ understanding of the term, “information”, may be considered to differ in character from the remaining areas in two ways.

- a) It is the dimension that is most obviously phenomenographical, as it explores young people’s understanding of a particular real-world phenomenon, in this case, information. The approach taken in the study is consistent with what Limberg (1999b: 117) asserts is a key feature of phenomenography, namely that interest is directed not at the phenomenon itself but people’s conceptions of that phenomenon.

b) The strand is, perhaps, less obviously relevant to information sources and information-providing organisations. Nevertheless, without research into how youngsters perceive the term, “information”, educational practitioners will remain ignorant of the ideas that spring into the mind of a pupil when he or she is confronted by its use. This insight is important as youngsters’ subsequent information-seeking behaviour may be influenced by their understandings of the word. The fact that no previous research into this area could be found bestows an added importance on to this strand of the work.

Links between the information needs and information-seeking strands are more immediately apparent and the decision to cover both in the project stemmed from the principle that information-seeking must be understood in the context of the needs that have inspired it, particularly as differences in needs may be responsible for differences in information-seeking behaviour. Eskola (1998) is one of the most vocal advocates of such an approach, and Vakkari (1997: 457) notes, “Methodically ‘information needs’ and ‘seeking’ are only analytical differentiations for the purpose of analysis. Methodologically they will be treated as functions of a broader task or problem situation to be coped with”. The researcher’s own belief was that this attitude would be shared, too, by the young people from whom data would be collected. The viewpoints of Eskola and Vakkari reflect the rationale behind current trends towards the examination of information-seeking in context, and Dervin (1997: 13) has observed the increasing popularity of this movement in the late 1990s. The work of Kuhlthau (1988a: 236-40), Marchionini (1989a: 54), Westbrook (1993: 543-46), Pitts (1994: 167-342), Fourie (1995: 130), Wilson (1999: 265-66) and Choo (2000: 251) also stresses the association between a person’s information need and subsequent information-seeking behaviour. Each writer suggests that the recognition of an information need actually marks the start of the information-seeking process for that individual.

4 FOCUS QUESTIONS

Just as content areas were defined in order to “concretise” the research question, so, in turn, these were translated into more specific focus questions which, by stipulating issues to be addressed in data collection, data analysis and the reporting of findings, provided a structure to guide the investigative process. Although these questions formed the principal foci of the project, care was taken to ensure that they did not form a strait-jacket that inhibited the researcher’s receptiveness to other significant issues emerging in the field. To ignore these areas would have limited the richness of the picture offered in relation to the three content areas. For this reason, the overall analysis embraced a wider range of “information issues” than the focus questions below might imply.

a) In relation to youngsters’ understandings of the term, “information”

- At what stage do youngsters first show an awareness of the term, “information”?
- What concepts do young people associate with the word?
- How does understanding of the term develop through childhood?

b) In relation to youngsters’ information needs as they view them

- What information do youngsters believe they require in their lives?
- How do information needs change during childhood?

c) In relation to how youngsters seek information to satisfy these needs

- What sources of information are used by youngsters?
- Are there patterns in the manner in which such sources are used?
- How successful are youngsters in finding the information they seek?
- How does information-seeking change during childhood?

5 TARGETED AGE RANGE

The youngsters forming the subject of this research are school pupils between the ages of four and eighteen. Younger children yet to enter mainstream school were considered too immature in their development, especially in terms of their language and thinking skills, for meaningful data to be collected from them. A similar rationale has been presented by Fasick and England (1977: 1) in relation to their own research into children's library use. Nevertheless, attempts have been made in other library-oriented studies (such as that of CIPFA, 1997: 8/4) to gather data from pre-schoolers. In these investigations, parents and carers have been provided with a questionnaire, the content of which has then been reinterpreted by the adult for the child, whose responses have been recorded by the grown-up. The Department of National Heritage (1995: 6) highlights, however, the distortion of the data that may result from such a method and, in the context of this PhD project, the involvement of a third party could clearly affect the extent to which the data obtained was actually derived from the youngster's own ideas. Furthermore, it is not until the Reception year at school that children are provided with a legal entitlement, through the National Curriculum for English (Department for Education, 1995a: 4), to receive training in describing "events, observations and experiences; making simple, clear explanations of choices; giving reasons for opinions and actions". While pre-school nurseries and childminders may seek to develop their youngsters' abilities in these areas, no comparable statutory requirement is in place. Nevertheless, like their older counterparts, children under four years old clearly have their own information needs and take steps to satisfy them. Indeed, Horning (1994b: 15), describing her experiences as a children's librarian, writes that even two- and three-year-olds "have very real reference questions" and indicates that the youngest patron ever to ask her such a question in a library was a mere eighteen months old.

In defining the upper age limit for the phase of childhood addressed in the study, cognisance was taken of work by Morrow and Richards (1996: 90, 93), who note how all those under eighteen are identified as children by the United Nations Convention on the Rights of the Child and the Medical Research Council's publication, "The Ethical Conduct of Research on Children".

Similar terminology is applied in relation to the findings of both this study and past research projects. Throughout the thesis, the terms, "youngster" and "young person", are employed when referring to anyone under eighteen.

6 EXPLORATION AND DEFINITION OF TERMS

6.1 Information need

The lack of a common understanding of the term, "information need", is a recurrent theme in LIS literature (Krikelas, 1983: 7, Varlejs, 1987: 72, Wilson and Walsh, 1996: 5, Gross, 1998: 14). The definitions that have been offered typically address one or more of the following dimensions: the manner in which needs emerge,

types of need that may exist, the nature of the information that may be required or how a “need” differs from a “want”.

6.1.1 Emergence of need

Despite the fact that definitions vary widely, shared elements of understanding can be found across a range of commentators. Wilson (1981: 7) and Nicholas (2000: 21), for example, both consider that information needs must be viewed as resulting from more basic human needs that may be cognitive, physiological or psychological/affective in nature. Furthermore, many writers agree fundamentally that needs arise from an individual recognising some form of dissatisfaction with his or her existing situation. Sometimes this takes the form of a detected discrepancy between the current position and a more informed state to which the person aspires in order to accomplish a task. This principle underpins Green’s (1990: 65) argument that “need is necessarily instrumental”, in that it provides a means towards an end.

According to Atkin (1973: 206), such a “perceived discrepancy between the individual’s current level of certainty about important environmental objects and a criterion state he seeks to achieve” gives rise to “extrinsic uncertainty” and it is from this that information needs emerge. Burnkrant (1976: 24-25) and Krikelas (1983: 6, 8), too, assert that uncertainty is fundamental to the concept of information need. In a similar vein, Kari (1998), drawing on Halpern and Nilan’s (1988: 170) constructs, postulates an information need to be “an individual’s conception of what information he needs to clarify ‘an unclear aspect of a situation’”. Although Dervin, in her sense-making approach, does not employ the term, “information need”, specifically, Poston-Anderson and Edwards (1993: 25), Kari (1998) and Choo (2000: 246) maintain that the “cognitive gap” on the part of the individual to which Dervin refers may be interpreted as an “information need”, with the person in question seeking to develop new sense in order to progress in the activity in which he or she is involved. Nicholas (2000: 20) does not mention Dervin’s work explicitly, yet he, too, defines “information need” in Dervin-like language, arguing that such a need arises when a person recognises a gap in his or her “state of knowledge and wishes to resolve that anomaly”. Dervin’s “cognitive gap” on the part of the individual mirrors closely Eskola’s (1998) belief that information needs begin with “a vague awareness of something missing” and Taylor’s (1968: 182) postulation that such needs develop from a “vague sort of dissatisfaction” that may initially defy linguistic description. /

Varlejs (1987: 72) unites the elements within a range of these definitions when she summarises, “Need is the perception that there is an uncertainty, a gap or conflict in knowledge, a failure to make sense”. Her underlying assumption, that information needs come about in problem situations, is widely held. It is also apparent, for example, in the beliefs of Walter (1994: 112), Talja (1997: 72), Choo (2000: 247) and Nicholas (2000: 20).

Whilst many commentators and researchers have attempted to define the “essence” of the origin of an information need, a contrasting approach has been taken by Gross (1998: 13), who addresses the concept in terms of its relationship to subsequent activity. She writes that it is “the precipitating action from which the balance of information seeking behavior receives its momentum”. This statement, however, must be considered to present only a limited insight into the phenomenon of information needs since they may be recognised by an individual but not necessarily acted upon. Perhaps Itoga (1992: 341), who pursues a similar line, is more accurate, describing an information need as a *hypothetical* “agent for information seeking behaviour”. The

temptation to associate information needs with action after people recognise that they are deficient in their existing information is, nevertheless, avoided by Derr (1983: 273), who argues that information that is needed may not only be that which an individual lacks; it may also be that which is already in his or her possession.

6.1.1.1 Attitude within the study

The researcher's attitude to information need within the context of the project combines many of the elements outlined above. It is acknowledged that information needs result from the situations in which young people find themselves. Some such situations, either as a result of circumstance or the requirement to fulfil obligations to others, may be termed "external", and present hurdles to which the youngster must react. In other situations, needs emerge as "internal" to the youngster, who wishes to know more in response to his or her own curiosities, inclinations and interests. Such leisure situations appear largely neglected within many definitions of information need that have attached a seemingly disproportionate importance to problems. Owing to the difficulties in operationalising the principle in researchable terms, no attempt is made within the study, however, to identify "needed" information already held by an individual.

6.1.2 Types of need

The definitions of "information need" offered by commentators such as Atkin, Burnkrant, Krikelas, Kari, Choo, Eskola, Taylor and Varlejs presuppose that an individual is aware of his or her information needs, which may thus be considered to take the form of "felt needs". Needs of this type may, in turn, be categorised on the basis of those to which the person responds by taking information-seeking action, and are in this way "*expressed*" to another party or information source, and those that he or she recognises but chooses to ignore and so remain "*unexpressed*". Faibisoff and Ely (1976: 3), Cronin (1981: 40) and Nicholas (2000: 20-24) are among those who have drawn attention to this expressed/unexpressed distinction.

In addition, Faibisoff and Ely (1976: 3) note the phenomenon of "unfelt needs", in which an individual is unaware of information that he or she requires but whose absence will result in some form of detriment to that person. Dervin (1976a: 28), Derr (1983: 273) and Green (1990: 67) also highlight the existence of needs of this type and a range of writers has applied different labels to the concept. It has been variously dubbed "delitescient need" (Cronin, 1981: 40), "dormant need" (Cronin, 1981: 40, Nicholas, 2000: 22-23), "unconscious need" (Krikelas, 1983: 8) and "unrecognised need" (Nicholas, 2000: 22). According to Cronin, an individual may become aware of his or her hitherto dormant needs only after they have been brought to light by an information provider.

6.1.2.1 Coverage within the study

Both varieties of "felt needs" - those acted upon by the informants and those that have been ignored - are addressed within the project. Since the focus of the inquiry lies in young people's information universes as they perceive them, coverage of unfelt needs was believed beyond the scope of the work, however.

6.1.3 The "information" within information need

Few commentators define explicitly the types of information that may be required by individuals experiencing information needs. Gratch (1978: 17) is particularly unspecific, arguing that information need may involve

“any kind of information from any source”, and Krikelas (1983: 6) does not explore the nature of the “messages” that he believes are required by those with information needs. Nevertheless, in this context, Chen and Hernon (1982: 5) consider information to embrace “all knowledge, ideas, facts, data and imaginative works which are communicated formally and/or informally in any format”. A similarly wide range of areas that may constitute information is outlined by Poston-Anderson and Edwards (1993: 25), who define the concept as embracing “any idea, opinion, fact, belief, or imaginative message” that helps people to make sense of their world.

6.1.3.1 Coverage within the study

For the purposes of the project, information is understood to be the intellectual material needed by a person to ease, resolve or otherwise address a situation arising in his or her life. It may be conveyed via several channels and in a range of formats, pictorial among them. Information is perceived to include facts, interpretations, advice and opinions. In their entirety, these areas embrace the three varieties of information identified by Wilson (1981: 5). Although the researcher’s nominated types are largely analogous to the forms believed by Chen and Hernon and Poston-Anderson and Edwards to constitute information, it was decided to exclude imaginative works on the basis that their inclusion would extend the scope of the study too far and possibly direct undue attention to, for example, the location of particular fiction books in libraries.

6.1.4 “Needs” as distinct from “wants”

The difference between information needs and information wants has generated much discussion among commentators over many years. Gross (1998: 13) suggests that the terms are often used interchangeably, and, indeed, Gratch (1978: 17) draws no distinction between them, believing needs to embrace both information that is essential to the user and that which is simply desired. Several differences between needs and wants are highlighted by Derr (1983: 273), including the fact that information may be needed without being desired. Further contrasts are identified by Chatman and Pendleton (1995: 136), who associate a need with a “state of dependency”, arguing that the absence of the required information puts “our current state of affairs in jeopardy”, whereas a want simply leads to an “enhancement”, which would provide “an added benefit if we possessed it”. Similarly, within the context of its own research concerning young people, the Department of National Heritage (1995: 5) apparently views the two concepts as entirely separate, with needs embracing what is required for an individual to function effectively within compulsory school education, whilst wants result from a person’s own inclinations and desires. If one accepts this assertion, then several types within various typologies of young people’s information needs should more accurately be viewed as “wants”. These include the “current lifestyles” needs within Latrobe and Havener’s (1997: 190) categorisations and the “recreational needs” identified by Minudri (1974: 158-59). Line (1974), however, asserts that a clear-cut division between “needs” and wants” cannot be readily made. Defining the term, “need”, as “what an individual *ought* to have, for his work, his research, his edification, his recreation, etc.”, Line recognises that, in strict terms, a need is a necessity - “something a person cannot do without” - but queries, “who is to say what is ‘necessary’, for himself or others?” A comparable question has been asked by O’Connor (1968: 201, 202). Line further asserts that “a recreational need may be just as much a need as an educational need”. Green (1990: 66), too, draws attention to the contestability of needs, arguing that the necessity of what a person states he or she requires may

be debatable, although there is no scope for disagreement if an individual declares he wants certain material. The role of subjectivity is also raised by Derr (1983: 274-75). Whilst believing that, for a person to experience an information need, he or she must have a legitimate purpose and the information sought must contribute to the achievement of that purpose, he admits that determination of the former's legitimacy is a matter for value judgement. He, himself, regards curiosity about others as an illegitimate purpose. For other commentators, discussion as to whether specific information is essential to a particular individual or merely a result of his or her desires is inappropriate since they contend that needs should be understood from the person's perspective rather than assessed in absolute terms through detached adjudication. Chen and Hernon (1982: 5), for example, indicate that information needs arise when individuals require knowledge in order to resolve a situation "as they see fit". A similar line is taken by Kari (1998), who believes an information need to embrace "the individual's conception" of what he or she deems necessary to clarify an aspect of a situation.

6.1.4.1 Attitude within the study

The researcher's conception of information need as employed in the study approximates closely to that of Gratch. No distinction is made between needs and wants, partly because to concentrate exclusively on what the investigator might consider "necessary information" would involve the introduction of a judgmental approach that seems incompatible with the aim of examining information needs from the perspective of the youngsters and developing a sympathetic understanding of their situations. The problematic task of determining either, in the words of Derr (1983: 274-75), what forms a "legitimate or acceptable" "information purpose", or separating what in practice constitutes information that is essential to the individual and what he or she simply desires also deterred the researcher from concentrating exclusively on "legitimate purposes" or necessary information. It may, in fact, be argued that since a researcher cannot experience the emotions and thoughts of an informant, the making of such distinctions is, as Line implies, nigh impossible.

6.2 Information-seeking

The detail and sophistication of definitions of information-seeking vary hugely from one commentator to another, although many envision it as a part of a broader category of action, such as "information user behaviour" (Fourie, 1995: 130) or simply "information behaviour" (Wilson, 1999: 263). Another commonly-held view, propounded by Krikelas (1983: 6), Pitts (1994: 65) and Kari (1998), is that information-seeking is a generic term covering any action taken to address an information need. Williamson (1998: 24), too, recognises that information-seeking is often understood as a process pursued in response to Dervin's "cognitive gaps" or Belkin's "anomalous states of knowledge". In a more detailed, need-oriented view of information-seeking, Krikelas (1983: 6, 8) writes that the identification of "messages", which is central to the process, is triggered by a person's awareness that his or her current state of knowledge is insufficient to deal with an immediate issue or problem. Moore (1995: 1) concurs, arguing that information-seeking begins when users "find themselves unable to progress through a particular situation without increasing the depth of their existing knowledge and understanding". Dervin (1983: 5) and Kuhlthau (1999a: 15, 1999b: 13, 15) maintain that information-seeking may itself be considered fundamentally a cognitive process, as it involves the construction of sense and understanding, and Marchionini (1989a: 54) describes it as "a special case of problem solving". For commentators such as Marchionini, Pitts (1994: 65) and Fourie (1995: 130), information-seeking begins

with the task of identifying information needs, although this view is not held universally. Indeed, Pendleton and Chatman (1998: 742) suggest that the process *results from* such a recognition of need rather than incorporates it.

Whilst affirming that information-seeking is a “problem-solving or decision-making process”, Choo (2000: 248) lists a series of steps, some of which are of a physical, rather than intellectual, nature, although, of course, there must be a cognitive basis for any such action. Pitts (1994: 65), too, draws attention to the role of both dimensions. In total, Choo’s phases address the identification of possible sources, the selection of those to be used, the location of or making of contact with them and interaction with them in order to obtain the required information. Kari (1998), likewise, emphasises the importance of information sources in the process, which she believes involves three key components. An inquirer forms a general plan of action or *information seeking strategy*, necessitating an approach to a physical carrier or *information source*, which provides the individual with *received information*. Attention to the role of sources also underpins Wilson’s (1999: 263) construct of information-seeking behaviour. He considers the term to be especially concerned with “the variety of methods people employ to discover, and gain access to information resources”. According to Solomon (1997: 1098), definitions of even the broader area of information behaviour have traditionally focused on “source selection and use of selected information resources”.

Most commentators either implicitly assume or explicitly state that, when undertaking information-seeking behaviour, inquirers are actively intent on finding material but a different line is taken by Erdelez (1999: 25), who believes information-seeking to be “a generic term for all types of information acquisition”. Kari (1998) concurs, arguing that information-seeking includes the accidental discovery of information as well as more purposeful behaviour.

6.2.1 Information-seeking and information use

There is considerable disagreement among commentators as to where the boundary should be drawn between information-seeking and information use. Limberg (1999b: 118) recognises this uncertainty when she comments, “In LIS literature the distinction between information seeking and information use is not all clear.” Whilst generally the former is understood as a process embracing the stages up to and including the identification and location of information in sources and the latter relates to the utilisation of what is found, Kari (1998) considers information use to be a part of the information-seeking process. Furthermore, the relative placement of, in particular, the evaluation of retrieved information varies. Marchionini (1989a: 54) and Fourie (1995: 130) believe it to lie within the domain of information-seeking, whereas Wilson (1981: 4-5) and Pitts (1994: 66) are among those who consider this area to form part of information use.

6.2.2 Attitude within the study

Within the project, a stance similar to that taken by Krikelas, Pitts and Kari has been adopted in relation to the concept of information-seeking, which is here understood to embrace any action taken by an individual to tackle a perceived need. Such actions are underpinned by decisions taken on a cognitive level relating, for example, to the selection of a particular source, resource or organisation and the manner in which it is to be exploited. *Considered* decisions on these matters are here considered to form an individual’s “information-seeking strategy”. The fact that, in the context of the project, attention is directed to situations where a

conscious effort is made to satisfy an information need means that the accidental discovery of information and incidental information acquisition as described by Erdelez (1999: 25) are beyond the scope of the study. It was also determined that information-seeking within the inquiry should not necessarily involve the use of recognised information sources. It may, for example, take the form of information/knowledge construction in the manner described by Dervin (1983: 5) and Kuhlthau (1999a: 15) via methods such as observation, and indeed use of one's own mental resources. A further ground rule to be applied was that the course of action taken by the youngster must be "owned" at least in part by that individual. Situations in which pupils at school conduct information retrieval on the instructions of their teacher from sources provided for them in lessons are ignored as there is insufficient scope for youngsters to make their own decisions with regard to the selection and exploitation of sources. Evaluation of information is also addressed in the project, and is seen as integral to the process of information-seeking, principally because, as Marchionini (1989a: 54) notes, this activity may result in an individual realising the need to return to the stage of recognising and interpreting an information problem and the subsequent phases involved in information-seeking activity may also be repeated. However, types of information behaviour subsequent to evaluation, dealing with how the material found is utilised, are again beyond the study, largely as it was feared that coverage of this action would increase the scope of the work too far by incorporating major areas of study skills such as notemaking as well as the tendency of youngsters to copy from text, which has generated much discussion over many years. These dimensions appear somewhat peripheral to the "information" focus of the work.

6.3 Information universe

A term whose use within existing work is much less frequent than that of "information need" and "information-seeking", it is employed within this study to refer to

- a) **theoretical knowledge bases**, specifically an individual's personal, cognitive understanding of the nature of information, embracing such aspects as what information *is* and how it can be obtained. These mental constructs are subject to ongoing revision, development and refinement as the person's experience increases;
- b) **actual circumstances** within which an individual needs and seeks information. It is in this context that the phrase is used by Latrobe and Havener (1997: 188). In terms of the information-seeking dimension, an information universe may relate to the sources available to and utilised by the person and the methods he or she employs for their exploitation. An individual's information universe thus includes, but goes beyond, his or her "information horizon" which Sonnenwald (1999: 185) believes to consist of the variety of information resources accessible to that person.

Aspect (b) is similar to the concept of an "information world" to which researchers such as Chatman (1996: 197), Solomon (1997: 1099) and Dawson and Chatman (2001) refer, to Amey's (1985a: 52) construct of an "information environment" and to the notion of the "user's life world" postulated by Wilson (1981: 6) who defines such a world as "the totality of experiences centred upon the individual as an information user". Like the theoretical knowledge bases, the practical circumstances are both unique to the person, since his or her situations are necessarily peculiar to the individual, and dynamic, because needs experienced by and sources available to a person, as well as his or her levels of information-seeking skill, vary over time.

6.4 Information encounter

Like “information universe”, the term, “information encounter”, is used much less often than “information need” and “information-seeking” in existing literature, although it has been employed by Kuhlthau (1988b: 270), in relation to her own research. Within the study reported in this thesis, such an encounter may be understood as the point in time/space at which an individual comes into contact with information as a result of the information-seeking action undertaken. Typically, although not necessarily, this action involves the pursuit of either recorded knowledge within sources or information transmitted by others. The material that is accessed may or may not be pertinent to the user’s need.

PART II:
EXISTING WORK EXAMINING THE SUBJECT

- Chapter Three - Results of Work Examining Young People's Information Needs
- Chapter Four - Results of Work Examining the "Where" and "What" of Young People's Information-seeking
- Chapter Five - Results of Work Examining the "How" of Young People's Information-seeking in Relation to Paper Sources
- Chapter Six - Results of Work Examining the "How" of Young People's Information-seeking in Relation to Electronic Sources and Retrieval Devices
- Chapter Seven - Models of Information Behaviour
- Chapter Eight - Methods Used in Studies of Youngsters' Information Needs
- Chapter Nine - Methods Used in Studies of Young People's Information-seeking

CHAPTER THREE

RESULTS OF WORK EXAMINING YOUNG PEOPLE'S INFORMATION NEEDS

This chapter explores the nature of young people's information needs as revealed in previous work. Initially, consideration is given to attempts that have been made to examine the full spectrum of such needs, either in terms of what is necessary at different stages in the life of a youngster for him or her to develop effectively or in terms of overall typologies of information needs. Thereafter, individual types of need are addressed in turn. The chapter concludes by assessing how information needs are indicative of the wider concerns that emerge in youngsters' lives.

1 INTRODUCTION

In the mid 1990s, Walter (1994: 112) considered there to be "no knowledge base at present that is specifically devoted to the information needs of children". Her assessment still appears true today, as the insights provided in existing literature offer a far from comprehensive picture of the subject. Indeed, any existing knowledge base is highly fragmented and reflects the fact that it has been accumulated piecemeal, sometimes through one-off analyses of patterns of youngsters' use of library materials and through informal observations by staff dealing with their reference queries. There has been minimal research involving data collection directly from youngsters themselves. As Latrobe and Havener (1997: 189) note, in comparison with studies devoted to their information-seeking strategies, investigations of young people's information needs are meagre in number.

2 DEVELOPMENTAL INFORMATION NEEDS

Broad outlines of young people's information needs are provided by Kuhlthau (1987b: 42-49, 1988c: 52-56), Hooten (1989: 268) and Blanshard (1997: 13), none of whom attempts to address these requirements in relation to actual subjects. The needs that they define are fundamentally adult constructs based chiefly on what the authors believe is essential to youngsters for their cognitive development.

3 TYPOLOGIES OF INFORMATION NEEDS

Categorisations of needs have been evolved for both young children and teenagers. In the former area, Farrell (1974: 143, 153) describes two forms of need - those of a *general* nature, relating to oneself, the environment and other people, and *life needs* addressing health, nutrition, safety, emotional security and intellectual stimulation. All the areas of the life needs have been covered at least to some degree in Walter's (1994: 119-23) typology, which is again aimed at younger children. Similar to Maslow's (1970: 35-47) hierarchy of needs, it includes classes devoted to *self-actualisation, esteem, love and belonging, safety* and *physiological* needs.

Teenagers have been the subject of more typologies. The way in which separate work has focused on the needs of young children and adolescents reflects the fact that commentators including Amey (1986: 9) and Kinnell (1994: 78) believe the two groups to be fundamentally different. An early attempt to identify the information needs of adolescents was made by Minudri (1974: 158-59), who isolated five areas: *school and curriculum needs, recreational needs, personal development needs, vocational and career information needs* and *accomplishment skills and information needs*. There is much common ground between Minudri's divisions and later efforts by Gratch (1978: 17-19) and Latrobe and Havener (1997: 190-91). From the totality of this

work, needs associated with school work, leisure and education/training emerge particularly prominently. Fourie and Kruger (1995: 226-40), too, highlight curriculum information requirements, although they also stress the importance of needs relating to youngsters' biological progress and situations involving their family and social environment.

4 ACADEMIC INFORMATION NEEDS

Studies reported by Petty and Reid (1963: 212), McCrossan (1970), Benford (1971: 2044), Gratch (1978: 21, 31), DuPree (1989: 28), Fourie and Kruger (1994: 98, 103) and Dobson (2000: 38, 66) have all revealed "homework" needs to account for a significant level of public library use among youngsters. Findings such as these have led Higgins (1994: 384) to conclude that research shows "overwhelmingly that young adults use the public library for schoolwork", and a comparable assertion is made by Chelton (1983: 31). The prevalence of academic information needs is further emphasised by the evidence of Herman (1983: 77), Harrington (1985: 73) and Overmyer (1995: 39) that many of the reference questions asked by young users of public libraries relate to this area, and Bennett (1998: 24) has noted the frequency with which homework questions have been posed by youngsters using a reference inquiry service available on the Internet. Nevertheless, results of work by Razzano (1985: 112, 114), Waltham Forest Libraries and Arts Department (1986: 22), Hill and Pain (1988: 30) and Gross (1998: 2) suggest that such needs are predominantly felt by older youngsters. Among their younger counterparts, Gross (1997: 159-63, 1998: 156) has found that a large majority of their library transactions that she investigated were made in response to their own needs, rather than external impositions, such as homework. The wider implications for information needs of the fact that so many adolescents are known to have used the public library for school work must be treated with some caution. Certainly the pattern should not be assumed to suggest that most information needs experienced by youngsters are of this type. Indeed, it may be that they merely employ other methods to satisfy their non-academic needs.

Whilst the curriculum information needs of pre-secondary age pupils appears to be an area as yet uninvestigated, findings relating to older pupils suggest that no particular subject is responsible for the majority of academic information needs throughout these later years of schooling. Fourie (1995: 131) found that, at secondary level, the subjects providing the highest numbers of information requests varied considerably depending on the age of the pupil, although heavy arts biases have been reported by Klitzke (1963: 218), Roberts (1969: 129-30), Gratch (1978: 35) and Burks (1996: 148).

5 NON-ACADEMIC NEEDS

Amey (1985a: 52-53) is critical of the view, advocated by the Department of National Heritage (1995: 5) and implicit in many early studies of young people's use of public libraries for information purposes, that the information needs of youngsters result primarily from their roles as pupils in education. According to Amey, to assume that youngsters' information needs arise merely from school work is to ignore the fact that, as individuals, they require information pertaining to sports, hobbies, social issues, spiritual growth and other "outside" learning. Fine (1977: 129-30) and Higgins (1994: 384) present a comparable argument, the latter asserting that to ignore the recreational requirements of individuals and to recognise only those that pertain to the school curriculum is to deny their need to find an identity consistent with their own values.

5.1 Individual types of needs

5.1.1 College and vocational needs

In Poston-Anderson and Edwards's (1993: 26-27) study of the life concerns of teenage girls, many of their factual needs pertained to education and training, and some youngsters sought information relating to these areas which involved interpretations, understandings and advice on possible courses of action. Similarly, Murray (1985: 60, 61) discovered that older girls often wanted information about education and careers. Gratch (1978: 17-18), too, has found that youngsters have shown considerable interest in information concerning jobs, as well as recreational activities. In an in-depth study of the information needed by youngsters when considering their future plans, Julien (1999: 43-44) recognises how, broadly, it was required for one of three purposes - to choose a career, to achieve a particular career goal or to select an institution of Higher Education. Simply because such information is desired, however, does not necessarily mean that it is pursued. A further investigation by Edwards and Poston-Anderson (1996: 214, 216-17), with twelve- to fourteen-year-old girls, found that, whilst, in relation to these areas, they, too, required information of a range of types - here assessments of their own ability, advice, facts, understanding, opinions and tactics in relation to courses of action - their concerns were insufficiently pressing for them to seek information actively.

5.1.2 Leisure needs

Authors disagree on the extent to which young people may be considered individuals with little commonality of interest. The argument of Nilsen (1986: 104) appears at the furthest end of the continuum. She asserts, "young people... usually have nothing in common except that they are born around the same time, grow up together, and have a common future." Evidence to support such a view may be found in the work of Heather (1981: 84-85), Dunster (1984: 7-11), Pountney (1986: 13) and Waltham Forest Libraries and Arts Department (1986: 50-51), all of which have discovered a great diversity in the subjects of magazines read by young people.

Despite conceding that each youngster is unique, with his or her own "special needs", Eyre (1996: 176) considers there to be "common strands of interest". Certainly, research suggests that, although differences are apparent between one youngster and another, there are general patterns in their interests and tastes. Many seem associated with gender. Murray (1985: 61) and Hill and Pain (1988: 33) have found the information needs of boys to be more diverse and less traditional than those of girls. In terms of specific areas, if the work of Marshall (1975: 137), the Department of Education and Science (1984: 16, 17), Dunster (1984: 7, 12), Murray (1985: 61), Hill and Pain (1988: 33), the Children's Literature Research Centre (1996: 216) and Chance (2000: 21-22) is taken as a whole, needs among boys emerge chiefly in the areas of sport, computers and other topics associated with technology, whereas girls are more interested in pop music, fashion/make-up and animals/nature. Chelton (1985: 22), Murray (1985: 61) and Bennett (1998: 24) also suggest that sex-related material is especially popular among boys. Nevertheless, Fieguth and Bußmann's (1997) research indicates the broad appeal of pop music, sport, computers and animals/nature, and they make no reference to differences in their popularity along gender lines. Overmyer (1995: 39) and Bennett (1998: 24) draw similar attention to the general appeal of the topic of animals. Although age-related patterns have attracted less comment than those based on gender, Murray (1985: 60) found her younger respondents to want information on sex and crafts/hobbies, whilst their older counterparts were more concerned with consumer information.

Overmyer and Bennett recognise that prominent current topics provoke information needs among youngsters, with Overmyer highlighting social issues and Bennett detecting interest at her time of writing in matters such as rain forest destruction and AIDS research. Kinnell (1994: 74-75, 79), too, writes of the manner in which young people are frequently concerned about “the major issues of the day” and, in this respect, they share many adult anxieties. She specifically cites unemployment, the prospect of nuclear war and, once more, environmental topics, as well as “sensitive issues” such as abortion, drug abuse and AIDS.

Few researchers have considered the drivers stimulating young people’s leisure information needs. Nevertheless, Herman (1983: 77) points to the influence of popular culture, and Callaghan (1983: 56-57) suggests that involvement in groups leads many to seek information when tackling club projects.

5.1.3 Unique information needs

Although researchers have shown needs for material on certain topics to emerge strongly across youngsters, Herman (1983: 76-77) and Gross (2000: 10) recognise that many information needs are unique to an individual. The latter writes that some derive from youngsters’ “specific life situations and... are idiosyncratically their own”. Herman, Gratch (1978: 18), Marshall (1982: 38) and Murray (1985: 61) all write of the need for “crisis” types of information, associated with matters such as drugs, violence, domestic break-ups, family problems and pregnancy. Other commentators and researchers have discussed further highly individual needs. Whilst DuPree (1989: 19) observes that health information in general is an important area for young people, she believes that their specific concerns vary widely and are highly specific to them. Subjective information involving interpretations, judgements, opinions and advice pertaining to relationships was required by many of the teenage girls interviewed by Poston-Anderson and Edwards (1993: 26-27). Bennett (1998: 24), too, has noted the prevalence of “advice questions” asked by young users of an information service offered on the Internet. Often questions involving guidance are associated with girls rather than boys, but Bennett found inquiries of this type to be made by males and females alike.

6 INFORMATION NEEDS AND LIFE CONCERNS

It appears that the requirements of older youngsters, in particular, with regard to information about relationships are indicative of their wider life concerns. A study conducted in Australia and described by Evans and Poole (1991: 59) found that twenty-three percent of the teenagers involved in the project cited personal relationships as one of the “five most important things in life”. The second and third most popular answers, education and jobs, were provided by twenty-one and twenty percent respectively. This is consistent with Poston-Anderson and Edwards’s (1993: 26-27) work since these areas formed a major category of information needs identified by the researchers. Noting that many information needs arise from the changes experienced by youngsters during adolescence, Gratch (1978: 20) highlights how such requirements may emerge from the struggle for identity, the need to achieve economic and emotional independence from parents, the selection of and preparation for an occupation, the development of an appropriate sex role and the growth of a sense of conscience, morality and values. These areas are largely analogous to the more general “developmental tasks of adolescence” defined by the psychologist, Havighurst (1953: 111-58). The results of DuPree’s (1989: 31-32, 35) survey, in which the leading three types of information need among the sampled teenagers emerged as those relating to college/scholarship, jobs/careers and drugs/alcohol, and the findings of Hill and Pain (1988:

35), who discovered that many of their teenage respondents would have welcomed more careers sessions and information on colleges and universities in their local public library, can likewise be seen to reflect broader concerns among young people.

CHAPTER FOUR

RESULTS OF WORK EXAMINING THE “WHERE” AND “WHAT” OF YOUNG PEOPLE’S INFORMATION-SEEKING

This chapter is devoted to existing work that offers insight into one aspect of the information-seeking behaviour of youngsters - the extent to which they use particular environments and providers to satisfy their information needs. The roles of people, libraries and other organisations, as well as specific types of sources, including books, magazines/newspapers and electronic materials, are covered individually. The scope of the chapter is widened in the final sections when more generic issues are examined - the degree to which youngsters exploit multiple providers and the factors that may influence a decision to use a certain source.

1 USE OF PEOPLE AS INFORMATION SOURCES

Faibisoff and Ely (1976: 10), Krikelas (1983: 11, 15-16), Liesener (1985: 13) and Wilson and Walsh (1996: 22) note that many studies have shown other people to be the most common source of information, and findings of investigations into youngsters’ information behaviour are generally in accord with their overall assertions. In particular, heavy use of parents, teachers and peers has been discovered by Amey (1985b: 26), Poston-Anderson and Edwards (1993: 27), Fieguth and Bußmann (1997) and Latrobe and Havener (1997: 191-93). Hayter (1998: 54) and Dobson (2000: 41), too, especially emphasise the role of parents, whilst Pitts (1994: 244) has drawn attention to how youngsters working on academic assignments have approached subject specialists. The temptation to consult other people has proved so strong that some of the pupils scrutinised by Cole and Gardner (1979: 188) and Wray and Lewis (1992: 20) resorted to this strategy when tackling a curriculum task, even though they had been asked to work with books. The wide range of needs which youngsters believe can be satisfied through personal information sources is a key finding of a survey conducted by Hertfordshire Library Service (1986: 28). When participants were asked how they would attempt to find information in eight diverse situations, in all except one instance the most popular preferred response was to ask a teacher, a friend or someone at home. The work of Latrobe and Havener (1997: 193) reveals that parents and peers are used to meet an especially wide range of needs. Evidence indicates that not only is the use of other people common but it is also highly successful (Amey, 1985b: 26, Poston-Anderson and Edwards, 1993: 27, Pitts, 1994: 233, Latrobe and Havener, 1997: 197, 198). Whilst most studies imply that other people form an important source of information regardless of the youngster’s age, projects by Fasick and England (1977: 7-8, 20) and Gross (1998: 134) suggest they are used most by young children.

More subtle reliance on other people has been reported by Edwards and Poston-Anderson (1996: 215-16, 219, 221), who describe how the girls they sampled monitored the behaviours, strategies and feelings of people either in similar circumstances to themselves or in other situations from which the youngsters could learn. Direct questions were rarely put to professionals even though some girls discussed careers matters with their parents.

2 USE OF PUBLIC AND SCHOOL LIBRARIES

2.1 Levels of use

2.1.1 Library popularity

Although many studies present highly positive pictures of youngsters' library use, the findings of much of the work should be treated with some caution on account of its age. Whilst Bryan (1961: 530), Mancall (1978: 90), Amey (1985a: 52), Murray (1985: 63), Waltham Forest Libraries and Arts Department (1986: 2, 59), Hill and Pain (1988: 27), Higgins (1994: 382) and Fieguth and Bußmann (1997) all refer to high levels of library exploitation among young people, these investigations generally pre-date the widespread use of the computer as an information channel in the home. Furthermore, some additional qualifying comments must be made. In particular, the Waltham Forest project found significant disparities in the library use of those within and outside full-time education, and Fieguth and Bußmann sampled only nine- to twelve-year-olds, an age group which the authors admit is traditionally associated with high reading activity.

2.1.2 Relative preferences for school and public libraries

Perhaps surprisingly, a range of investigations has revealed that many youngsters make more use of, or at least prefer, the public library in comparison to its school-based counterpart (Petty and Reid, 1963: 213-14, Fasick and England, 1977: 7-8, 20, Mancall and Drott, 1979: 234, Marshall, 1982: 13-14, Murray, 1985: 59, Hertfordshire Library Service, 1986: 20, Hayter, 1998: 54). Furthermore, Jones (1976) and Fourie (1996: 206) have found exploitation of the school library to fall dramatically as youngsters increase in age. The latter suggests this is due to the more advanced nature of their academic assignments which demand employment of more comprehensive collections. Work by Burdick (1996: 21) has also highlighted the lack of school library use by older youngsters, even for homework purposes. Again, perhaps, it is a reflection of the sophistication of work demanded of older pupils that research by Gratch (1978: 32), Murray (1985: 59) and Fourie and Kruger (1994: 103) has found that, typically, they make more use than their younger counterparts of their central public library.

Other studies, however, present a far more optimistic picture in terms of the school library. Wozny (1982: 39), Mancall and Deskins (1984: 9), Amey (1985a: 49), Burks (1996: 146), Chance (2000: 20) and Dobson (2000: 41) all report high levels of school library exploitation. Impressive success rates by pupils in locating appropriate material in this environment have been indicated by Wozny (1982: 39), and Mancall and Deskins (1984: 13) found that much material referenced in the assignments they scrutinised had come from the school library. Furthermore, Callison and Daniels (1988: 178) recount that their American junior high schoolers tended to rate the school library as the most important resource when preparing assignments. Jones (1976) has found the organisation to be especially popular among less able youngsters. It would appear, however, that the high degrees of school library use stated by Burks and Callison and Daniels resulted from teachers deliberately setting assignments that could be tackled with the aid of material from the school library.

2.1.3 Variations in types of use made of school and public libraries

Little work has been done to compare the uses made by youngsters of public and school libraries. Nevertheless, Amey (1986: 12) discovered that his teenagers visited the former principally for assignment information, whereas the latter was viewed as a venue for studying, meeting friends and doing homework. Fourie and

Kruger (1994: 103), too, note the importance of public libraries as centres for “hard” information, although they detect that there may be gender differences in the type sought by youngsters. The investigators observed that more girls than boys used the library for curriculum purposes but males showed a greater inclination to employ the library for material on more personal needs.

2.1.4 Low levels of library use

Tendencies among some youngsters to use non-library materials have been reported by Burks (1996: 146), who found that a significant proportion of her research subjects used only textbooks provided by their teacher. In addition, there is much evidence of a decline in library use generally during the teenage years (Jones, 1976, Tabberer, 1987: 80, Saunders, 1993: 15, Hayter, 1998: 1, 36). Nevertheless, Razzano (1985: 112), while acknowledging an *apparent* reduction in library use among adolescents, suggests that, if such patterns are based on issue figures, a misleading picture may be emerging. She believes that many youngsters consult reference books or borrow texts from the adult library and there is no indication that the user is, in fact, a youngster.

2.2 Factors affecting levels of library use

2.2.1 Use of school and public libraries

Research has shown many influences to affect the extent to which youngsters use libraries. Specifically, public libraries have been seen to be favoured over school libraries chiefly on the grounds of

- a) more materials being available (Petty and Reid, 1963: 214-15, Gallo, 1985: 738, Burks, 1996: 146);
- b) greater convenience (Petty and Reid, 1963: 214-15, Burks, 1996: 146);
- c) fewer restrictions on the use of materials (Burks, 1996: 146);
- d) longer opening hours (Burks, 1996: 146).

Petty and Reid (1963: 212), Roberts (1969: 131) and Fourie (1996: 207) also comment that many youngsters visit the public library after they have been unsuccessful in finding all the information they desire in the school library.

2.2.2 Non-use/limited use

Work investigating youngsters’ lack of library enthusiasm has highlighted a diversity of factors either forming deterrents to use or contributing to non-use:

- a) insufficient need to exploit the organisation (Murray, 1985: 58-59, Waltham Forest Libraries and Arts Department, 1986: 14, DuPree, 1989: 26);
- b) a belief that materials within the library are inappropriate to the youngster’s particular needs (Nilsen, 1986: 104, DuPree, 1989: 26, Poston-Anderson and Edwards, 1993: 28-29);
- c) lack of time (Fasick and England, 1977: 13, 26, Murray, 1985: 59, Hertfordshire Library Service, 1986: 33);
- d) the public library’s distance from home/difficulties in arranging transport (Fasick and England, 1977: 13, 26, Murray, 1985: 59);
- e) problems in obtaining permission to visit the public library (Fasick and England, 1977: 13);

- f) restrictive rules and practices (Meyers, 1999: 42, 44-45) including fines and unsuitable opening hours. Berman (1987: 311, 313), McDonald (1988: 28), Tyerman (1989: 393) and Barry-Rodriguez (1999) have drawn attention to the lack of user-friendliness in the subject headings employed for information retrieval, and Flint (1979: 72) writes of the "mystique" surrounding the library catalogue. Mann (1993: 23, 151) adds that the scattering of materials within the building, with books, magazines and pamphlets all located in different areas and separate indexing tools required for the exploitation of each, also militates against easy searching;
- g) anxiety over ability to return books on time (Hertfordshire Library Service, 1986: 33);
- h) negative perceptions of the personalities of library staff (Roberts, 1969: 131-32, Totterdell and Bird, 1976: 113, Gallo, 1985: 738-39, Hayter, 1998: 49-54, Meyers, 1999: 42, 44, Dobson, 2000: 45-46);
- i) the quiet atmosphere (Gallo, 1985: 738, Meyers, 1999: 44);
- j) an opinion that libraries are "dull and boring" (Nilsen, 1986: 104, Hayter, 1998: 44).

3 USE OF OTHER INSTITUTIONS

Whilst school and public libraries are clearly the institutions from which many youngsters obtain most of their information, some use has been seen to be made of local academic libraries (Wozny, 1982: 39, Craver, 1987: 141). Marshall (1982: 13-14) draws attention to two further organisations that may be employed by youngsters - in relation to working teenagers, the works/industrial/training library and youth clubs which may offer books, magazines and newspapers. Nevertheless, in Marshall's list of six sources of reading/information material, these occupy the lowest two places.

4 USE OF INDIVIDUAL INFORMATION SOURCES AND TECHNIQUES

4.1 Internal sources

Although work addressing this area is meagre, Marchionini (1989b: 611) detects a tendency among youngsters to use their own long-term memory for answering information questions before consulting any external sources. Latrobe and Havener (1997: 191) note a similar self-reliance among teenagers, and Heather (1984c: 35) has found that children as young as seven and eight have been able to bypass the need to use the intended printed sources for assignments when the information that they have been asked to find in response to specific questions is sufficiently obvious for them to use their own cognitive abilities.

4.2 Books, magazines and newspapers

A range of studies, conducted at different times and in different countries, demonstrates the popularity of books and magazines among youngsters attempting to satisfy their information needs, especially those generated by the school curriculum. Individual investigations present inconsistent pictures of their relative levels of use, however. More use of books than magazines has been reported by Roberts (1969: 130), Mancall and Drott (1979: 228-29), Mancall and Deskins (1984: 11), Callison (1988: 140, 141) and McGregor (1993: 99). Most of these projects scrutinised youngsters producing school assignments but Hertfordshire Library Service (1986: 17) and Chance (2000: 22) have found evidence of a similar balance in non-academic situations. Nevertheless, research described by Pountney (1986: 13) implies that the relative uses of books and magazines vary according to the age of the youngster.

In terms of specific forms of books, the widespread employment of encyclopedias has been observed by Roberts (1969: 130), Sheingold (1987: 81), Marchionini (1989b: 599-601) and Fourie (1995: 132), although other commentators have published contrasting findings. Less use has been reported by, for example, Mancall and Drott (1979: 228-29) and Mancall and Deskins (1984: 11). Moreover, the Children's Literature Research Centre (1996: 217) and Dobson (2000: 50-51) have found encyclopedias to be unpopular sources among many older youngsters. Similarly, Gratch's (1978: 42) work revealed use of encyclopedias to decline as grade level increased.

A different impression of the relative popularity of journals and magazines has been provided by Wozny (1982: 37), Dunster (1984: 7), Craver (1987: 86), Burks (1996: 144, 149), the Children's Literature Research Centre (1996: 214) and Hayter (1998: 58). In their totality, these studies have shown youngsters to rely more heavily on magazines than books when producing specific assignments and have discovered more reading of the former than the latter when leisure interests are being pursued. Craver also draws attention to the common exploitation of newspapers for academic work, and their frequent use in a more general context has been noted by Amey (1985a: 45, 50-51), Murray (1985: 57) and Burks (1996: 144). Murray's findings, and those of Gratch (1978: 41), Hertfordshire Library Service (1986: 46) and Hill and Pain (1988: 32) suggest that their use increases with age.

4.2.1 Factors limiting the use of journals

A significant pattern emerging in the PhD investigations of McGregor (1993: 99) and Pitts (1994: 258) is that both recognised that their teenagers made little use of periodicals when engaged in academic assignments. The latter ascribes this to pupils' lack of awareness of tools for their effective exploitation, and Hirsh (1999: 1271) has found youngsters to be under misapprehensions regarding periodical indexes. Gratch (1978: 41) noted greater use of journals to be prevalent in her study but inquirers' awareness of indexes was still, apparently, limited.

4.3 Telephone "hotlines"

Minudri (1974: 158) writes of the importance of telephone "hotlines" as a channel that provides highly personalised and "intense" information, and Gratch (1978: 18) recognises their importance in disseminating information concerning matters such as family, school, peer and self-image problems.

5 USE OF MATERIALS AT HOME

Research suggests that domestic materials form a significant resource for young people, even when their needs relate to academic tasks. This pattern emerges in the work of Callison and Daniels (1988: 178), Fourie (1996: 206), Gordon (1996: 31), Chance (2000: 20-21) and Dobson (2000: 41). Fourie, for example, discovered that before their visit to a library in Centurion, South Africa, over forty percent of the youngsters surveyed had sought information from home materials. No information channel was used more widely in advance of the library visit. According to Burks (1996: 147), for some young people at least, finding the desired materials at home eliminates the need for searching elsewhere, since some of her high schoolers attributed their non-use of the school library to their having at home all the required resources.

5.1 Electronic sources

Investigations in the last five years have revealed high levels of computer exploitation by youngsters for information-seeking purposes. At the turn of the millennium, Hirsh (1999: 1265) detected increasing use of IT to satisfy needs resulting from both school assignments and personal interests. Anxiety, however, has been expressed by Criddle (1998: 58) and Barry-Rodriguez (1999) that the employment of electronic sources may have a detrimental effect on the levels of use of more traditional materials. Research-based evidence to substantiate this fear is provided by Hayter (1998: 44), who has found that many youngsters rely almost exclusively on the CD-ROM encyclopedia, "Encarta", for subject information. The concerns of Criddle and Barry-Rodriguez are alarming given work by Latrobe and Havener (1997: 192), which suggests that the width of information needs that are satisfied by youngsters using electronic sources is very narrow. Their investigation indicates that books, magazines and other people such as peers, teachers and parents are typically used to meet a much wider range of information needs.

The extent to which youngsters rely on the Internet for information has been the subject of little research to date. A far greater volume of work has examined their strategies for exploiting it. One might suspect, however, that much has changed even in the few years since Fieguth and Bußmann (1997) found that, among nine- to twelve-year-olds at least, use of the Internet was not a common activity. Indeed, as the millennium dawned, Walker and Moen (2000) noted a tendency for youngsters "to gravitate towards the World Wide Web... as a primary source to resolve their information problems or for other purposes". They concluded that, for the "networked generation", it has become "the desired method of locating information". Meyers (1999: 42, 44) has made similar observations in relation to needs arising from school assignments. Nevertheless, work by Dobson (2000: 41) suggests that the degree of use of the Internet for information is still exceeded by use of parents and, in the same year, Chance (2000: 22) reported that a recent survey found that books consulted for school purposes, volumes read for pleasure, newspapers and magazines devoted to subjects such as fashion/beauty and sport were more widely read by young people than Web sites.

6 USE OF BROADCAST SOURCES

Opinion is divided on how far youngsters obtain information via television. Walter (1994: 123) and Breivik and Senn (1998: 17) argue that they receive much of their information from this source, and Latrobe and Havener (1997: 192) show how television and radio were regularly used by the teenagers in their study. Certainly there can be little doubt that, as Kinnell (1994: 75) points out, television has increased teenagers' awareness and understanding of many topical issues which, in a previous era, would have been believed to be the preserve of adults. Nevertheless, youngsters involved in the investigations of Fasick and England (1977: 7-8, 20) and Amey (1985a: 51-52) scarcely considered television to be a significant information provider. The latter believes this to be partially a result of the fact that, once broadcast, a programme is effectively "lost" to the viewer, unless it is repeated. At the time of Amey's writing, the video cassette recorder was still relatively new.

7 RICHNESS IN THE USE OF INFORMATION PROVIDERS

Wozny (1982: 38, 41) found that, when working on academic assignments, the teenagers she sampled utilised a range of sources located in diverse institutions. Mancall and Deskins (1984: 10) made a comparable assertion

in their study of high schoolers again involved in the production of homework. The relevance of the findings of these 1980s studies to today’s world must be questioned, however, given recent indications that the advent of the computer as a household information source may reduce the willingness of youngsters to investigate other resources to such an extent that some are prone to use only their home computer when tackling academic assignments. Nevertheless, research conducted by Latrobe and Havener (1997: 192-95) as recently as the 1990s suggested that, at this time, academically able teenagers still exploited a range of sources when looking for information required in their lives. It is, perhaps, significant that the studies of both Wozny and Latrobe and Havener relate to older youngsters. This is congruent with Fourie’s (1996: 207) revelation that her senior secondary school respondents made use of more information channels and services than their junior colleagues. The work of Walter (1994: 125-26) in relation to younger, less privileged children presents a less optimistic picture. She describes how the ten-year-olds forming the subject of her study were clearly “information poor” and struggled to obtain accurate and sufficient information even on basic health and safety matters. Like Latrobe and Havener, Julien (1999: 41-43) recognises that youngsters involved in making decisions about their futures often consult a range of sources but, in her research, they did so reluctantly, simply because they could not find all the required information in one place.

8 FACTORS AFFECTING THE USE OF INFORMATION PROVIDERS AND CHANNELS

A review of past studies reveals that many factors may contribute to a youngster’s decision to use a certain information provider or channel. They may, however, be grouped into five categories, embracing

- a) the nature of the need that has prompted the youngster to seek information;
- b) the characteristics of the inquirer;
- c) variables associated with the sources potentially available to the youngster;
- d) advice offered by others;
- e) chance.

In the table below, each factor within these categories is stated, and findings from previous work quoted to demonstrate its effect. Some variables serve as drivers that encourage the use of a particular source or channel, whilst others act as deterrents.

FIGURE B: KEY FACTORS AFFECTING YOUNG PEOPLE’S USE OF INFORMATION PROVIDERS AND CHANNELS

| Area | Factor | Evidence from research |
|----------------------|---------|---|
| Need characteristics | Subject | Use of school libraries to tackle assignments based on their contents (Callison and Daniels, 1988: 178, Burks, 1996: 146) |
| | | Employment of public, rather than school, libraries for more advanced work (Fourie, 1996: 206) |
| | | Visits to college/university libraries because of diversity of materials required for assignments (Mancall, 1978: 91) |
| | | Exploitation of specialised departmental libraries for investigation of esoteric topics (Craver, 1987: 170) |

| | | |
|--------------------------|---|--|
| | | Reading of books to satisfy "special reading interests" (Amey, 1985a: 51) Consultation of newspapers/periodicals when current and interdisciplinary information required (Gratch, 1978: 41, Limberg, 1999a) |
| | Depth of information | Visits to public libraries for in-depth work (Fourie, 1995: 132) Use of materials in home/school library collections to tackle ready reference questions (Fourie, 1995: 132) |
| | Required end product | Use of interviews with experts considered most appropriate given visual nature of video productions set as assignments (Pitts, 1994: 233) |
| | Urgency | Exploitation of Internet reference service for "last-minute" homework information (Bennett, 1998: 24) |
| Inquirer characteristics | Personal limitations | Dependence on adults a factor in young children's non-use of public libraries (Fasick and England, 1977: 13) |
| | Personal preferences | Preference for computer-based sources when information available in traditional and electronic forms (Barlow, Karnes and Marchionini, 1987: 72, Perzylo and Oliver, 1992: 237-38, 1994: 154, Pitts, 1994: 240-41) |
| | Past information-seeking success | Public library visits resulting from dissatisfaction with previous efforts in school library (Roberts, 1969: 132) |
| | Immediate attitude to failure during search | Reluctance to pursue alternative library-based approach after initial failure, preferring entirely different method (Pitts, 1994: 246-47, 377) |
| | "Life situation" constraints | Use of domestic materials to save time in face of homework pressures (Dobson, 2000: 69) |
| Source characteristics | Availability | Reading of family's newspapers (Marshall, 1975: 136) Popular use of "Encarta" software, often included in computer package originally purchased (Hayter, 1998: 42) |
| | Proximity | Level of use of public library affected by distance from home (Jones, 1976, Gratch, 1978: 32, Hill, 1982: 71, Harding, 1983: 93, 94-95, Rudduck and Hopkins, 1984: 54, Fourie and Kruger, 1994: 100) |
| | Convenience | Book format considered "more convenient to manage" than that of journal articles (Callison, 1997: 351) |
| | Familiarity | Exploitation of materials already known to users (Pitts, 1994: 240, 244, Gross, 1998: 143-45) |
| | Perceived ability to meet need | Libraries spurned in belief that desired information not available within (Poston-Anderson and Edwards, 1993: 28) Books employed because considered more likely to be useful than newspaper/periodical articles on account of greater length (Callison, 1988: 140) |
| | Barriers | User-unfriendliness of library/librarian/library practices (Roberts, 1969: 131-32, Totterdell and Bird, 1976: 113, Flint, 1979: 72, Gallo, 1985: 738-39, Berman, 1987: 311, 313, McDonald, 1988: 28, Tyerman, 1989: 393, Mann, 1993: 23, 151, Burks, 1996: 146, Fourie, 1996: 207, Hayter, 1998: 49-54, Barry-Rodriguez, 1999, Meyers, 1999: 42, 44-45, Dobson, 2000: 45-46) |

| | | |
|--------|-------------------------------------|--|
| | | Time required to make library search (Petty and Reid, 1963: 213, Roberts, 1969: 131, Fasick and England, 1977: 13, 26, Murray, 1985: 59, Hertfordshire Library Service, 1986: 33, Fourie, 1996: 207) |
| Advice | ... of family/friends | Pitts, 1994: 244 |
| | ... of teachers | Use of human sources after guidance from teachers (Pitts, 1994: 232) Lack of prompting from teachers a factor in non-use of school libraries (Rudduck and Hopkins, 1984: 32-33, Burks, 1996: 149) |
| Chance | Accidental discovery of information | Pitts, 1994: 244, Erdelez, 1997, 1999, Williamson, 1998 |

CHAPTER FIVE

RESULTS OF WORK EXAMINING THE “HOW” OF YOUNG PEOPLE’S INFORMATION-SEEKING IN RELATION TO PAPER SOURCES

This chapter widens the scope of the review of work that has addressed youngsters’ information-seeking behaviour by examining that concerned with the ways in which they gain access to and exploit sources. It focuses particularly on this use within the context of activities for school, beginning with basic dictionary work and class projects. The chapter includes coverage of how youngsters set about retrieving books from collections and the help they may solicit from others. Attention is also directed to the ways in which young people seek information within a volume. Once more, the chapter concludes with discussion of some of the more generic issues that have emerged in a variety of investigations.

1 DICTIONARY WORK WITH INFANTS

In one of the rare studies exploring the development of children’s information-seeking skills with age, Davies (1985: 9-16) examines the infant school phase. She particularly highlights how skills associated with dictionaries, which form one of earliest quick reference sources to be consulted by young children, increase after initial work in Reception until, by the age of six or seven, some pupils can order alphabetically by the second or even third letter. However, the research of Heather (1984c: 47) and Tabberer (1987: 17) has found that some much older youngsters still have problems with alphabetical sequencing beyond the first letter.

2 INFORMATION-SEEKING AND PROJECT WORK

2.1 Work with young children

Few research projects have specifically addressed young children’s interactions with information sources. Nevertheless, Davies (1985: 16-22, 25) outlines how six- and seven-year-olds are capable of extracting information from materials such as school dinner menus, telephone directories, calendars and parts of newspapers when answering literal questions but small print size may make their use of some sources difficult. Davies reports only “varying degrees of success” when children of the same age consulted library books to investigate topics of their own choice. It seems that there is a major leap from the skill required to retrieve information in response to “exercise” questions to that demanded when children seek to address their own questions. Indeed, the work of Kobasigawa (1983: 259, 261), Kuhlthau (1988c: 54) and Moore and St. George (1991: 162-63) suggests that tasks of this nature may not be appropriate until the ages of eight to eleven.

2.2 Preparatory strategies for information-seeking

Teachers’ use of pupil-generated questions to guide the information-seeking process is commonly reported (Lavender, 1983: 8, 9, Moore and St. George, 1991: 163, Mallett, 1992: 49, Pitts: 1994: 187, Lewis, Wray and Mitchell, 1995: 11), although the fact that Lavender’s children were as young as six and seven is unusual. Typically, the formulated questions deal with broad topics, rather than problems or issues. The question-generating technique has not, however, won universal support. Heather (1984c: 81) criticises the narrow range of questions that tend to emerge, and Moore and St. George note their often “general” and “vague” nature. Lyons et al (1997: 14) highlight the difficulties experienced by many pupils, who are given little practice in

setting their own questions during other classroom activities. After framing the questions, pupils' success is partially determined by their ability to synthesise keywords for the retrieval of sources and material. Paterson's (1981: 14) work has revealed that many youngsters find the application of this skill difficult. Furthermore, Pitts (1994: 190-92) has shown problems to emerge when youngsters insufficiently familiar with the topic attempt to define foci for scrutiny. Indeed, research by Kuhlthau (1988a: 238-39) and Limberg (1999a) indicates that pupils may initially seek broad subject information through what Rudduck and Hopkins (1984: 36-37) term "general reconnaissance reading" before developing specific foci. Encyclopedias often form a key source for this early background reading (McGregor, 1993: 90, Fourie, 1995: 132).

There is little evidence that the question formulation process is natural to pupils and undertaken intuitively. Cole and Gardner (1979: 175) and Kuhlthau (1988c: 54) have, in fact, recognised an inclination among some youngsters to find out anything they can about their overall topic, and few of the reports produced by Moore's (1995: 12) ten- to twelve-year-olds addressed their original study questions. Moreover, Heather (1984c: 72) describes how some of her research subjects simply selected a book and decided that the areas it covered would provide their focus.

2.3 Information collection

2.3.1 Consultation of multiple sources

Kuhlthau (1988c: 54) traces how the ability of youngsters to use multiple sources gradually develops with age. Eight- to nine-year-olds could use only a single source when undertaking topic work, whilst youngsters of ten to eleven were seen to be able to combine information from several. Wehmeyer (1976: 89), Sheingold (1987: 81), Gordon (1996: 33) and Gross (1998: 142-43) present a less optimistic picture in relation to older pupils, however, and research by Cole and Gardner (1979: 188) found that even eleven- and twelve-year-olds considered it much easier to use teacher-produced materials than reference books.

2.3.2 Assessment of information relevance

Difficulty in determining the relevance of material encountered during an information search in relation to a topic is a recurrent theme in the literature (Moore and St. George, 1991: 167, McGregor, 1993: 91, Gordon, 1996: 31). Tabberer (1987: 99-101) attributes such problems to teachers' excessive use of "pre-packaged" materials and the consequent lack of practice they offer in selecting and rejecting individual sources. Where relevance decisions have been made, the issue of the type of information considered by pupils to be relevant has been investigated by Limberg (1999a). She discovered that her teenagers considered information to be relevant if it dealt with the overall topic, if it covered a particular aspect or if it offered a certain perspective or opinion on the subject.

3 BOOK RETRIEVAL TENDENCIES

3.1 Selection of individual titles

Davies (1985: 12-14), again in her developmental commentary, shows how Reception-aged children can use cover pictures to help them select books on particular broad topics when faced with a small group of items. Although Davies suggests that five- to six-year-olds can begin to understand the basic groupings within a school library, the actual selection methods of young children are often erratic. Lewis (1989: 152-53) writes

how they choose books on the basis of what they find attractive, and both she and Gross (1998: 146, 160) have noted the employment of tactics which reduce the need to go to the library shelves.

There is a considerable body of opinion suggesting that youngsters of all ages pay little attention to the written content when choosing individual books. For example, the children studied by Moore (1988) and Moore and St. George (1991: 166) simply sought a match between the work's title and a chosen keyword. Cover illustrations were also examined. Often this led to the rejection of suitable books. Kobasigawa (1983: 268) and Hirsh (1999: 1272) have found evidence of similar behaviour.

3.2 Use of library tools

Davies (1985: 16), Kuhlthau (1988c: 53) and Cooper (1996: 51-52) draw attention to how youngsters of around seven years upwards are aware of the way in which they can retrieve books from a classified collection in the school library. Nevertheless, Gross (1998: 145) found that none of her research subjects used the library's numerical classification scheme to help them locate books of interest. Instead they relied on knowing the shelf location of the subject. According to Kuhlthau (1988c: 55), true understanding of the Dewey Decimal Classification Scheme's subdivisions does not really begin until the age of around ten to eleven. This assertion is corroborated by the research of Moore and St. George (1991: 165) which found that children of approximately this age had only a basic knowledge of Dewey.

The work of Kuhlthau (1988c: 53) and Lewis (1989: 152) suggests that pupils aged eight to nine are beginning to consult card catalogues. If, as Armstrong and Costa (1983: 49) suggest, many programmes of library user education start to train children of around this age in catalogue use, patterns in instruction may provide an explanation for this behaviour. Investigations have, however, uncovered a range of problems encountered by youngsters using a card catalogue, including the ability to

- a) find the right cards from the correct drawer (Tabberer, 1987: 45);
- b) form keywords when the pupil's knowledge of the subject is limited (Moore, 1995: 13);
- c) generate either alternative search terms or words that go beyond those used by their teacher/textbook (Tabberer, 1987: 44-45, Kuhlthau, 1988c: 54, Moore, 1988, Gross, 2000: 12);
- d) vary the keywords in the light of search results (Moore and St. George, 1991: 164);
- e) locate the desired books on the shelves (Gratch, 1978: 45, Bird, 1982: 14, Hertfordshire Library Service, 1986: 35, Pitts, 1994: 247, Barry-Rodriguez, 1999, Dobson, 2000: 43). Fieguth and Bußmann (1997) go so far as to state that *the* major problem youngsters have in using the library is locating the materials of interest to them *on the shelves*. Nevertheless, work by Eaton (1991: 82-83) suggests that skills in physically finding items improve with age.

Rather than making a systematic survey of the library's contents, youngsters have been seen to adopt a number of questionable approaches. These include:

- a) working solely with the first book found on the shelves that was considered to meet the need (Cole and Gardner, 1979: 174-75, Moore, 1995: 14);
- b) seeking only the number of sources stipulated in the assignment brief (Bland, 1995: 97-98);
- c) scrutinising materials in the "reserve section" or library's book truck rather than the shelves of the main sequence (Rudduck and Hopkins, 1984: 99-100, McGregor, 1993: 85);
- d) bypassing the library and using textbooks supplied by the teacher (McGregor, 1993: 90).

The tendency of Cole and Gardner's youngsters to use the first suitable book they encountered can be seen as part of a wider information-seeking pattern, as Moore and St. George (1991: 165) report youngsters' tendency to examine carefully the first relevant record in the card catalogue but ignore those that follow, and some of the eleven- to twelve-year-olds studied by Paterson (1981: 14) failed to look at the text of a given book beyond the first page of an appropriate chapter when scanning for particular information. The other tactics employed may be explained on the basis that they reduced the need to consult the library catalogue and/or make a thorough search of the many books that they would find on the shelves.

Two major studies of information-seeking by American high schoolers give contrasting impressions of their retrieval skills. McGregor (1993: 89) notes how her research subjects experienced few problems in analysing their topics in order to devise appropriate search terms. They made several attempts if they were initially unsuccessful and varied the specificity of the search in accordance with their results. Pitts (1994: 247), however, presents a far less positive picture. She discovered that pupils who failed in their initial information-seeking usually ceased their search in the library and appeared unaware that a different approach could result in finding the desired information within the building eventually. Pitts (1994: 251) attributes this behaviour to a poorly developed "problem-solving orientation" among the youngsters. Moore (1988) and Gordon (1996: 29) refer to similar limitations. Central to this shortcoming is a formulaic approach based on total reliance on the library catalogue or index. This has been seen by Tabberer (1987: 81), Kuhlthau (1988c: 56) and Pitts (1995: 181). Frustration among youngsters generally emerges when their favoured method has not delivered the desired results. Moore (1995: 28) emphasises the differences between the problem solving perspective needed in the library and the formula employed by her ten- to twelve-year-olds, namely "think of a question, identify its keywords, look up the subject index for a Dewey number, go to the shelves and find the answer in the exact form it is wanted". Several explanations have been advanced for the apparent inability of youngsters to develop the appropriate perspective. Liesener (1985: 20) draws attention to the expedience of using quicker but less thorough methods, and the incongruity between the approach needed in the library and that typically required in the classroom is highlighted by Gordon (1996: 33).

3.2.1 Gender and experience as factors in library skill and behaviour

Whereas most studies make little distinction between the relative library skills of girls and boys, Toifel and Davis (1983: 213-15) suggest that their abilities in this area cannot be assumed to be similar. The investigators found that females scored more heavily than males when tackling a library skills test. They attribute the pattern to girls' greater verbal proficiency and to differences probably due to socialisation patterns. Toifel and Davis also discovered youngsters from families of higher socio-economic status to be more successful than those from families of lower status, perhaps because of motivational factors and variations in access to information materials, and more able readers achieved higher scores than poorer readers.

Other disparities have been revealed by Gratch (1978: 46-47). When searching for information on a topic, regular library users and infrequent visitors were generally seen to exhibit different behaviour, which reflected variations in their familiarity with the environment and consequent differences in the extent of their independence. She considers such a split to be apparent among youngsters generally, regardless of age.

4 ASSISTANCE IN THE LIBRARY ENVIRONMENT

4.1 The need for help

Studies by Eastman (1986: 218), Moore (1988), Pitts (1994: 265, 379-80) and Limberg (1998: 28) have found adults either to underestimate the difficulty of information-seeking skills or to overestimate youngsters' capabilities when undertaking work in the library. Paterson (1981: 14) notes that too often teachers assume that the necessary skills develop naturally and warns that even terms such as "index" may not be clearly understood by early secondary school youngsters. According to Sandlian (1995: 22), it is the bibliographic "rules" employed by libraries that are beyond the cognitive comprehension of youngsters. Certainly the work of Pitts (1994: 244-45, 265) has shown that many youngsters possess very limited understandings of the way in which knowledge is organised within libraries and her teenagers achieved little success in finding what they desired.

4.2 Levels of help sought by youngsters

Lewis (1989: 152) outlines how youngsters gradually become more independent in their use of the library after being highly reliant on staff to find information on given topics when aged nine and under. Gratch (1978: 44-45) and Kuhlthau (1988c: 56) detect a similar increasing independence among older youngsters, although in its totality work by Wozny (1982: 39), Hertfordshire Library Service (1986: 35), McGregor (1993: 85), Fourie (1995: 134), Burks (1996: 145, 149) and Hirsh (1999: 1270) has found youngsters of a range of ages to make significant use of the intermediary. Much greater independence has been reported by Moore and St. George (1991: 165), Pitts (1994: 247), Borgman et al (1995: 674), Sandlian (1995: 22) and Burdick (1996: 21). Burdick particularly notes the reluctance of boys to ask for help. Investigating the reasons why youngsters may prefer not to seek assistance from staff, Gratch (1978: 44-45) found some to be too shy or embarrassed; others felt that the librarian was too unfriendly or preoccupied and many were simply loath to admit requiring help.

Human assistance within libraries may be provided not only by staff, of course. Indeed, Horning (1994a: 57, 1994b: 13), Barry-Rodriguez (1999) and Gross (2000: 12) draw attention to the fact that reference interviews with children are often conducted with a third party, such as a parent.

In view of the reliance researchers such as Pitts (1995: 181) have seen in terms of youngsters' use of the library catalogue, it is perhaps surprising that Walter, Borgman and Hirsh (1996: 109), Wallace and Kupperman (1997: 4) and Gross (1998: 146-47) write that consultation of the catalogue is one of the least popular courses of action available. Low opinions of catalogues have also been expressed by youngsters interviewed by Sandlian (1995: 24).

5 DIRECT INTERACTIONS WITH SOURCES

5.1 Use of retrieval aids within texts

Davies (1985: 11-13) explains how Reception children can understand the basic functions of book contents pages and indexes, yet the pupils with whom she worked did not use them until the following academic year and even then teachers provided assistance and only the most capable readers were involved. The six- to seven-year-olds with whom Lavender (1983: 10) came into contact were already familiar with the two types of tools, and understood alphabetical ordering and page numbering. Nevertheless, a variety of problems has emerged even with older children. The youngsters scrutinised by Mallett (1992: 56) and Hirsh (1999: 1272) seemed

more expert in their use of contents pages than indexes, and Heather (1984c: 38) describes how long indexes, in particular, can cause confusion. Furthermore, Heather (1984c: 49) and Paterson (1981: 14) have discovered children to possess poor mental models of the differences between the two aids and the circumstances when each should be employed.

Pupils of varying ages appear to find the task of generating keywords demanding. Generally, their difficulties have been described in relation to the use of the library catalogue but Gordon (1996: 29) draws attention to the ways in which this problem can apply to individual books. Gordon, Kobasigawa (1983: 264-65) and Gross (2000: 12) have found that many youngsters simply employ the teacher's terms as search words, without synthesising their own, although Kobasigawa discovered this to be most prevalent among younger research subjects. Work by Wray and Lewis (1992: 21) and Tabberer (1987: 99-100) suggests that insufficient use of non-fiction books in the classroom may reduce the ability of youngsters to acquire the necessary skills.

Whatever the reason, the lack of systematic use of indexes and contents lists to appraise the relevance of a particular book has been noted by Tabberer (1987: 95-97), Moore and St. George (1991: 166) and Dean and Houldey (1997: 14). Whilst in Tabberer's case most of the pupils investigated were able to make an accurate assessment of the usefulness of a text, this was generally done intuitively, rather than by scanning the index or contents list. A similar pattern emerges in relation to the use of the two finding aids to locate particular information within a book. Cole and Gardner (1979: 175), Paterson (1981: 13), Tabberer (1987: 87) and Pitts (1994: 250) have all reported limited use of the tools for this purpose, with youngsters often seeming to prefer turning pages sequentially. These findings add weight to the assertion of the Children's Literature Research Centre (1996: 218-19) that "even at sixteen many pupils have not yet worked out effective strategies for dealing with non-narrative texts".

5.2 Use of individual texts

5.2.1 Quick reference sources

Paterson (1981: 13-14) and Heather (1984b: 218-19) outline a series of problems afflicting youngsters using encyclopedias. Specifically, the former notes the difficulties that may result when consulting the index of a multi-volume encyclopedia and the latter highlights misconceptions in relation to the guide words at the top of each page. Both researchers recognise the tendency of pupils to misread the information provided in graphical formats. More generally, Rowbottom (1982: 140) draws attention to the help required by a ten-year-old library user who, having been shown the desired encyclopedia on the shelves, attempted to locate information in order to satisfy his particular query. He needed further aid at every level - in identifying the relevant volume of the encyclopedia, in locating the appropriate entry, in reading the article and in finding the required information. Research by Edyburn (1988: 258-59) has also uncovered a lack of success by youngsters using paper encyclopedias, especially when the searches were complex and self-assigned. The readability levels of children's encyclopedias have been a particular concern of White (1990: 313), who concludes that articles even within encyclopedias purporting to be suitable for youngsters in elementary American grades are often, in fact, written for eleven- to twelve-year-olds or older.

The tactics employed by youngsters using encyclopedias have been investigated by Marchionini (1989b: 605-06, 614) and Large et al (1994: 508, 511). Although the teenagers sampled by the former were seen to possess well developed mental models of encyclopedias, their efficiency in retrieving specific

information relevant to their needs was hindered by their tendency to read articles from the beginning, rather than scanning headings and text for appropriate keywords. Marchionini also detects a habit among young users to ignore the index and immediately consult the actual articles. A similar pattern was observed by Large's team working with eleven- and twelve-year-olds. Pursuing information in response to given queries, many initially searched the alphabetically-ordered subject volumes, even though indexes were available. If this approach was unsuccessful, some *then* decided to consult the index but others, having now formulated a different search term, continued their examination of the subject volumes. Again, the shortcuts made by the youngsters may be ascribed to expediency.

5.2.2 Subject books

Rudduck and Hopkins (1984: 33-34, 35) discuss the problems that even Sixth Formers experience in using books other than the set texts recommended by their teachers. They describe, in particular, how pupils may struggle to recognise the information that they require when the materials they are using are less intellectually and linguistically accessible than those they usually consult. Some become anxious when required to look beyond one textbook, which had hitherto appeared to provide all the necessary information. There is evidence to indicate that many subject books supposedly aimed at children are actually written at an adult level. White (1990: 308-12) found there to be very little difference between adult encyclopedias and subject reference books intended for use by children when they were compared via readability formulas and for sentence idea density. Armbruster (1984: 213) suggests that subject textbooks used in American elementary schools are often "inconsiderate" to the reader, and commentators and researchers such as Beck and McKeown (1989: 50-59), Mallett (1992: 58, 61) and Smith (1992: 18-19, 21) highlight a range of stylistic and structural features that render text more demanding for a youngster to read. Investigations by Kintsch (1990: 179) have found that older youngsters are better equipped to cope with such "inconsiderate" text, and White (1990: 314) believes that strong motivation on the part of the reader can often overcome problems arising from the manner in which text is structured.

Armbruster and Armstrong (1992: 8, 11) note that youngsters are most effective in extracting information from passages that provide factual detail. They are significantly less successful when required to distil an overall message within the text. Kintsch (1990: 162), too, writes of the tendency of young pupils to struggle in forming broad generalisations from what they have read. The researcher attributes this shortcoming to youngsters processing "text in a linear, element-by-element fashion", with readers concentrating their efforts on individual sentences or sentence pairs. A similar habit has been noted by Bereiter and Scardamalia (1989: 367), who believe that such an approach "economizes on mental effort". Nevertheless, Kintsch (1990: 168, 173) recognises that, although upper elementary school pupils struggle to abstract generalised meanings from text, the ability develops with age.

5.3 Divergence of knowledge of information-seeking theory and practice

There is considerable research to indicate that, despite direction from teachers and librarians, much of young people's information-seeking in relation to books takes place in a highly "ad hoc" fashion. In particular, the discrepancy between the verbal knowledge of information retrieval presented by pupils and their actual behaviour in information-seeking situations is an anomaly observed by several investigators. Cole and Gardner

(1979: 188-89, 191) found that some youngsters, rather than retrieving facts from text, obtained the required information from their friends, and others used recollections from their own memories. Their behaviour belied the fact that, in interviews, the youngsters presented more systematic strategies for information-seeking. Younger children sampled by Wray and Lewis (1992: 20) exhibited similar disparities, and relied heavily on pictorial detail within the books they used, a tendency also observed by Heather (1984c: 75) in relation to seven- to eight-year-olds. Cole and Gardner and Wray and Lewis conclude that the youngsters' cognitive understandings were inadequately transferred to more practical situations.

5.4 Reflection on value of paper materials

Although the credibility of electronic sources in the eyes of youngsters has been the subject of increasing scrutiny in recent years, little attention has been paid to this matter in relation to paper sources. Nevertheless, Pitts (1994: 296) writes of the tendency of many young people to accept without reservation the information presented to them in paper form, and Wallace and Kupperman (1997: 7) comment that youngsters are usually concerned with what material *says*, rather than what it *is* in terms of its source, date and reliability. According to Barry-Rodriguez (1999), such an attitude could be the result of convenience. The commentator argues that, in terms of the public library environment at least, youngsters are inclined to use those resources that are most easily available and pay little attention to their authority. The American Library Association (1989: 90, 95), however, asserts that it is the use of material “pre-packaged” by teachers that “encourages people to accept the opinions of others without much thought”. The work of Hong and Aiex (1995) suggests an even more fundamental cause. They identify a “passive learning atmosphere” that predominates in classrooms. Teachers talk, pupils listen and do their homework. The youngsters develop their skills in reading and writing but do not “learn how to think critically and how to make sound judgments on their own”. If the argument of Hong and Aiex is accepted, the lack of attention paid by youngsters to the credibility of information sources is directly attributable to the type of learning that takes place in schools.

Against this background, the findings of Limberg (1999a), admittedly in relation to older teenagers, are surprising, as her informants used relatively sophisticated criteria to assess the “cognitive authority” of information sources. In particular, they considered the status, position and capacity of the author, as well as the use of expert terminology within the text.

CHAPTER SIX

RESULTS OF WORK EXAMINING THE "HOW" OF YOUNG PEOPLE'S INFORMATION-SEEKING IN RELATION TO ELECTRONIC SOURCES AND RETRIEVAL DEVICES

This chapter complements the previous one by addressing a similar area but in relation to electronic tools and sources. After initially highlighting the manual demands made of youngsters, the chapter explores the ways in which young people have been seen to exploit library computer catalogues, remote online encyclopedias, CD-ROM, the Internet and e-mail. Emphasis is given to youngsters' views on these tools and sources, the problems they encounter and the approaches they take in using them. Observations are made on the credibility, in the eyes of young users, of information provided by electronic sources, and overall patterns common to a range of computer-based materials are isolated.

1 MANUAL SKILLS

In comparison with coverage of the intellectual skills and approaches employed by young people using electronic sources, the attention given in existing literature to their manual abilities has been limited. Nevertheless, the study, "Utilization of a Microcomputer in an Elementary School Learning Resource Centre" (1983: 5, 8), and work by Eastman and Agostino (1986: 52), Chen (1993: 35-36), Solomon (1994: 46), the National Council for Educational Technology (1996: 8, 47) and Kafai and Bates (1997: 106) have highlighted inadequate keyboarding skills among youngsters. Particular problems arise from the non-alphabetical arrangement of the letters, an ignorance of keyboard conventions and limited dexterity, with the result that youngsters' inputs are often slow and inaccurate. Teenagers, as well as younger children, have been seen to have poor keyboarding skills, although NCET found that youngsters with home computers were usually more effective. Difficulties with touch sensitive screens (Fasick, 1992: 51) and mouse control (Perzylo and Oliver, 1992: 233, 1994: 150) have also been reported. In view of the prevailing picture, Marchionini and Teague's (1987: 145) comment that their observed seven- to twelve-year-olds interrogating a remote encyclopedia made few typing errors appears curiously atypical.

2 SPECIFIC APPLICATIONS

2.1 Computer catalogues

2.1.1 Levels of user success and popularity

Various studies report significant levels of success among young users of library computer catalogues (Chen, 1993: 35, Solomon, 1993: 249, 263, Borgman et al, 1995: 676-78, Walter, Borgman and Hirsh, 1996: 107-08, Hirsh, 1997: 738, 742, 1999: 1271), although the youngsters scrutinised by Solomon and Borgman et al had the advantage of access to reference sheets that offered considerable assistance. Furthermore, in Borgman's case, the subjects the users were investigating could be expressed simply as single search words. Hirsh (1997: 738-40, 741) has discovered success to vary according to the complexity of the task and the degree of subject knowledge possessed by the user.

Much research into young people's use of computer catalogues has shown them to be preferred to their traditional counterparts. Their popularity has been recognised by Armstrong and Costa (1983: 49), the project, "Utilization of a Microcomputer in an Elementary School Learning Resource Centre" (1983: 5, 7), and

the Department of National Heritage (1995: 62). In particular, youngsters have been seen to find it easier to locate the material they desire (Armstrong and Costa, 1983: 49) and fewer demands have been considered to be made on users in terms of alphabetical ordering and following filing rules (Armstrong and Costa, 1983: 49, “Utilization of a Microcomputer in an Elementary School Learning Resource Centre”, 1983: 7). Again, however, studies do exist that provide a very different impression. Gross (1998: 145) highlights the *unpopularity* of the computer catalogue among the participants in her research, and Edmonds, Moore and Balcom’s (1990: 30-31) youngsters lacked the skills to use either the card or electronic catalogue effectively, although searches of the latter failed much more often than did those of the card catalogue, which youngsters were seen to prefer. The unease of the youngsters when interacting with the electronic catalogue seemed particularly due to their lack of familiarity with it and to its user-unfriendliness.

2.1.2 Problem areas

As with youngsters’ use of traditional card catalogues, a number of significant problems have emerged in relation to the exploitation of the computer equivalent. These include:

- a) difficulties in forming appropriate search terms (Sandlian, 1995: 22, Nahl and Harada, 1996: 202);
- b) an apparent reluctance by users to go beyond the terms presented within the search problem (Chen, 1993: 37);
- c) the inclination of youngsters to employ natural language that does not match the terms within the catalogue’s database (Chen, 1993: 36, Hirsh, 1996: 50, 1997: 740, Nahl and Harada, 1996: 205);
- d) poor spelling of search terms (Solomon, 1993: 252, Nahl and Harada, 1996: 205, Walter, Borgman and Hirsh, 1996: 108);
- e) a tendency to become “lost” in the system when many hierarchical levels are involved (Solomon, 1993: 255, Borgman et al, 1995: 677) and for youngsters to be unable to retrace their steps (Hooten, 1989: 269-70);
- f) trouble in adhering to or understanding the online protocol (“Utilization of a Microcomputer in an Elementary School Learning Resource Centre”, 1983: 8, Edmonds, Moore and Balcom, 1990: 31, Chen, 1993: 35);
- g) an inability to recognise appropriate information when concealed within lengthy lists (Chen, 1993: 36, 38).

Although most of these issues relate exclusively to computer catalogues, the first two problems have also been identified in relation to youngsters’ use of their traditional counterparts. Furthermore, as Hooten (1989: 269) observes, both forms of catalogue may require some alphabetical ordering to be undertaken by the youngsters, despite the fact that the “Utilization of a Microcomputer in an Elementary School Learning Resource Centre” (1983: 7) report suggests that the lack of demands made of the user in this area formed one of the biggest advantages of the computer catalogue featured in their work. It would appear, therefore, that users of automated catalogues are susceptible to generic problems associated with catalogues of either type, as well as others that are specific to electronic versions.

2.1.3 Search approaches

Generally, a browsing style has been seen to be adopted by youngsters (Barry-Rodriguez, 1999). Very little use of Boolean logic has been observed in youngsters’ searches and, where this has been included, it has tended to be unsophisticated (Pitts, 1994: 247-52, Nahl and Harada, 1996: 202). Borgman et al (1995: 682) and Walter,

Borgman and Hirsh (1996: 108-09) have found users to be particularly successful when employing a browse-based technique if topic keywords are difficult to spell or searches are open ended. Younger users, especially, seemed to benefit from the reduced emphasis on correct spelling and keyboarding skills when executing a browse-based search, although some enjoyed the more direct access to information offered by the entry of a more specific keyword or phrase. Hirsh (1997: 742) suggests that youngsters are most likely to be successful if a range of different subject search approaches are provided by a system.

2.1.4 Uses

Fieguth and Bußmann (1997) and Külper, Schulz and Will (1997: 207) assert that many children do not understand the function of an OPAC. They may attempt to play with it and fail to use it as “an instrument of search strategy”. The research of Solomon (1993: 253, 1994: 49), too, indicates that youngsters do not always use OPACs for their intended purposes. Although the vast majority of transactions he witnessed involved efforts to locate materials, some instances emerged in which pupils attempted to use the catalogue as a source of information in its own right. Its employment in this “fact-finding” context can be attributed only to youngsters’ misunderstanding of the nature of the tool. Further confusion over the information that a computer catalogue may be expected to supply has been observed by Pitts (1994: 256).

2.2 Actual information sources

2.2.1 Remote online encyclopedias

Several early studies of young people’s use of actual sources of information, as distinct from bibliographical tools such as OPACs, examined remote online encyclopedias (Eastman, 1986, Eastman and Agostino, 1986, Marchionini and Teague, 1987, Edyburn, 1988). Eastman (1986: 214-16, 218-19) found levels of motivation when using these resources to be high and youngsters’ considered their exploitation to be easier than that of books. They especially praised the speed at which a search could be made, the limited effort involved and the amount and up-to-dateness of content available, although some of the youngsters’ claims had no factual basis.

Just as the majority of researchers investigating the use of computer catalogues by young people conclude that they are generally successful in their interactions with the tool, Marchionini and Teague (1987: 143, 145, 153) found that most of their pupils were able to use a remote online encyclopedia effectively, and all believed that the computer had been a major aid in their search for information. The investigators further suggest that younger children were equally as successful as their older counterparts, although the latter were more willing to use books, as well as the computer, and they directed their comments more towards the subjects that they were addressing than the medium itself. Users of all ages employed single, concrete search terms but, as with some young OPAC users, several seemed to lose their sense of position in the menu hierarchy. Whilst a more pessimistic picture is presented by Eastman and Agostino (1986: 52-56) and Edyburn (1988: 258-59), the former attribute the pupils’ modest success rates as much to weaknesses within the encyclopedia as to shortcomings in the users’ skills. Nevertheless, the youngsters seemed incapable of using the more sophisticated search features to their best advantage. Edyburn found user success to be greatest when a browse-based approach was offered by the system and specific factual information was sought in response to simple, assigned tasks. He concluded that search success was largely dependent on three variables: the skills of the searcher, the nature of the search task and the information system itself.

2.2.2 CD-ROM

2.2.2.1 Popularity and ease of use

Although Burdick (1996: 21), working with teenagers, found evidence of a “gender gap” in their attitudes to electronic sources, with boys describing them as “fun” and girls being more concerned with their utility, research in the field suggests that youngsters, irrespective of sex, relish using CD-ROM software for finding information. Despite the fact that the reading level of the material retrieved has not always been found to be appropriate to the user, high degrees of motivation among pupils employing this technology have been reported by Barlow, Karnes and Marchionini (1987: 72), Bland (1995: 58-59, 100), NCET (1996: 41-42), Dean and Houldey (1997: 14) and Large, Beheshti and Breuleux (1998: 358), and a preference for CD-ROM rather than paper materials has often emerged. Specifically, when contrasting CD-ROM and manual searching, youngsters have drawn attention in relation to the former to the lack of effort required to conduct an information search (Barlow, Karnes and Marchionini, 1987: 72, Pitts, 1994: 241, Jacobson and Ignacio, 1997: 786, Hayter, 1998: 42-43), the simplicity of the tasks involved in undertaking such work (Perzylo and Oliver 1992: 237-38, 1994: 154, Large, Beheshti and Breuleux, 1998: 362), the speed of the process (Jacobson and Ignacio, 1997: 786, Large, Beheshti and Breuleux, 1998: 362), the larger amount of information that may be accessed (Large, Beheshti and Breuleux, 1998: 362) and the “better information” available (Jacobson and Ignacio, 1997: 786). Research by NCET (1996: 41) has also revealed the ease with which youngsters have been able to retrieve information from CD-ROM. Even the youngest users investigated by Marchionini (1989a: 59-60) achieved considerable success, although their older counterparts required fewer moves and less time. They were also able to extract more relevant information. A somewhat more gloomy impression is provided by Dean and Houldey (1997: 14), however. Despite the fact that the teenagers they observed were thought to be highly computer-literate and enjoyed working with CD-ROM, some needed further training in order to use the resource effectively.

2.2.2.2 Search approaches and problem areas

Many of the characteristics of searches carried out by youngsters using CD-ROM have much in common with those of young users interacting with computer catalogues. Again, a marked absence of, or confusion surrounding, Boolean logic has been widely noted (Barlow, Karnes and Marchionini, 1987: 68, 70, Marchionini, 1989a: 62-63, Marchionini, 1989b: 614, Large, Beheshti and Breuleux, 1998: 356). Marchionini (1989a: 61, 64) also comments on youngsters’ entry of actual sentences and natural language to query the system, and Large, Beheshti and Breuleux (1998: 367) found that their youngsters often simply employed words used by their teachers to describe their topics. In several studies a browsing approach has once more been seen to predominate (Marchionini, 1989a: 64, Oliver and Oliver, 1996: 41-42, Large, Beheshti and Breuleux, 1998: 366), yet Bland’s (1995: 68) teenagers recognised the need to combine keywords to increase search effectiveness. Youngsters scrutinised by Large et al (1994: 512) readily experimented with the search routes offered by the system. They found a keyword approach most successful when attempting a complex query, whereas a menu-driven route proved the best method when conducting a simple search. In common with Eastman and Agostino’s users of remote encyclopedias, youngsters of various ages sampled by Marchionini (1989a: 64, 1989b: 614) readily accepted basic system settings and ignored more sophisticated search options. A further recurrent theme in research, here in relation to multiple CD-ROM projects, appears

to be the tendency of youngsters to employ a favoured strategy repeatedly, even if it is not delivering the desired results (Oliver and Oliver, 1996: 41-42, Large, Beheshti and Breuleux, 1998: 367).

2.2.2.3 Forms of information accessed

Whilst there is little common ground across investigations in relation to which forms of information provided via multimedia CD-ROM software are most popular with youngsters, it would appear from the evidence of Perzylo and Oliver (1992: 233, 235-36, 1994: 151, 153) and Large, Beheshti and Breuleux (1998: 355) that, whilst at the computer, young users are generally most intent on exploring the most stimulating aspects of the software rather than pursuing focused information-seeking. Screens consisting purely of text have often been seen to hold little appeal (Perzylo and Oliver, 1992: 236-37, 1994: 151, 153, Jacobson and Ignacio, 1997: 787). Many youngsters, however, attach considerable importance to securing printouts that may be read subsequently (Oliver and Perzylo, 1994: 227, Large, Beheshti and Breuleux, 1998: 360). Nevertheless, even in this respect research does not present an entirely consistent picture, since Bland (1995: 65) and Jacobson and Ignacio (1997: 793) have highlighted the tendency of many of their study participants to print out only limited amounts of material.

2.2.3 The Internet

2.2.3.1 Popularity

Whereas most studies of OPAC and CD-ROM use indicate that youngsters enjoy the work and achieve considerable success when searching, investigations into their interactions with the Internet present a more mixed picture. Although youngsters sampled by Kafai and Bates (1997: 10), Moyer and Sambucci (1998: 60, 62) and Watson (1998: 1034) were enthusiastic in their attitudes to the Internet, frustration has been seen to set in quickly when problems are encountered (McNicholas and Todd, 1996, NCET, 1996: 51, Bilal, 1998: 49). Wallace and Kupperman's (1997: 23, 24) youngsters were particularly negative in their perceptions of the Internet. Dissatisfaction has been expressed by young users in relation to the inability to find, or access, desired information (Fidel et al, 1999: 31, Dobson, 2000: 53, Walker and Moen, 2000), the slow speed of information retrieval (NCET, 1996: 9, 12, 50-51, Kafai and Bates, 1997: 108, Fidel et al, 1999: 31, Hirsh, 1999: 1270-71), technical problems, including hardware crashes and connection breakdowns (Moyer and Sambucci, 1998: 62, Hirsh, 1999: 1270) and the fact that the desired information could be found more easily in book form (Wallace and Kupperman, 1997: 17, Moyer and Sambucci, 1998: 62).

Some of researchers' more positive findings regarding young Internet searchers, however, echo many of those discussed by investigators scrutinising youngsters exploiting CD-ROM. Users have welcomed the "ease" and "comfort" of Internet searching (Walker and Moen, 2000), the lack of effort involved (Fidel et al, 1999: 32), its greater convenience in comparison with making a search of library materials (Jacobson and Ignacio, 1997: 792-93) and the up-to-dateness of the information that may be accessed (Fidel et al, 1999: 32), as well as the diversity of information available in terms of its subjects, forms and levels of specificity (Fidel et al, 1999: 32).

2.2.3.2 Success rates and problem areas

Like attitudes, youngsters' success rates have been seen to vary across different investigations. Whilst Kafai and Bates (1997: 110) considered that the American elementary school pupils involved in their project were all "able to use Web sites to advantage in their learning", very low levels of pupil success have been reported by Bilal (1998: 48-49), and NCET (1996: 9, 50-51) comments on the difficulty, for youngsters, of Internet searching. Retrieval effectiveness has also been seen to vary according to the nature of the task, although there is conflicting evidence as to whether youngsters search most successfully if the task is simple and concrete or vague, abstract and ill-defined (Wallace and Kupperman, 1997: 25, Schacter, Chung and Dorr, 1998: 847, Fidel et al, 1999: 32, Dobson, 2000: 60). The balance of research, however, appears to suggest that the latter is easier. In addition to the direct complaints made by youngsters, researchers have identified for themselves a range of problem areas associated with pupils' exploitation of the Internet, some of which echo findings of studies relating to youngsters using other forms of electronic resources, especially OPACs and CD-ROM software. Problems include:

- a) a need for considerable adult assistance (Lyons et al, 1997: 11, Fidel et al, 1999: 30-31), although Kafai and Bates (1997: 106-08) have found independent use of the Internet to increase with age;
- b) the inappropriate level of much of the information available on the Internet (NCET, 1996: 51, Kafai and Bates, 1997, 108, 109, Dobson, 2000: 53);
- c) the provision of too much information, and insufficient use of scanning/skimming strategies and systematic approaches when selecting sites for further investigation (NCET, 1996: 51, Kafai and Bates, 1997: 110, Bilal, 1998: 49, 52, Fidel et al, 1999: 29);
- d) poor degrees of accuracy in spelling and in the entry of Uniform Resource Locators (Kafai and Bates, 1997: 106, Fidel et al, 1999: 30) but, as might be expected, in Kafai and Bates's study the abilities of youngsters in this area again improved with age;
- e) overuse of natural language or even entry of full sentences when stating search criteria (Wallace and Kupperman, 1997: 22, Bilal, 1998: 48, 49, Schacter, Chung and Dorr, 1998: 847). In contrast, however, Jacobson and Ignacio (1997: 792) report a tendency among their youngsters to use short phrases when searching the Internet;
- f) difficulty in developing alternative search terms, as reflected in the repeated use of the same keywords (Lyons et al, 1997: 12, Wallace and Kupperman, 1997: 20, Bilal, 1998: 48). Nevertheless, more flexible and resourceful approaches in the use of keywords have been described by Fidel et al (1999: 30).

2.2.3.3 Search approaches

Like those interacting with OPACs and CD-ROM software, young users of the Internet appear to spend little time on the formulation of keywords before their interactions with the computer and they seldom take advantage of sophisticated search features (McNicholas and Todd, 1996, Schacter, Chung and Dorr, 1998: 847, 848, Watson, 1998: 1029, Fidel et al, 1999: 27, Hirsh, 1999: 1271-72). Again, researchers have detected either a marked absence of Boolean operators or inappropriate use of them (Lyons et al, 1997: 18, Wallace and Kupperman, 1997: 20, Bilal, 1998: 48, Schacter, Chung and Dorr, 1998: 847, Hirsh, 1999: 1271-72).

2.2.4 Electronic mail

Despite the fact that e-mail is generally regarded as a tool for communication, rather than information-seeking, the NCET (1996: 42, 44) study demonstrates the use that youngsters have made of it in the latter context. In particular, NCET describes a project in which ten- to eleven-year-olds, struggling to locate on the Internet information dealing with rain forests, were contacted by another school which supplied them with details of a suitable Web site. NCET notes, too, the manner in which inquirers have been able to obtain information more directly through e-mail correspondence with subject experts, whose knowledge may be of benefit in curriculum projects.

3 CREDIBILITY OF ELECTRONIC SOURCES

Investigations into the use of electronic sources provide contrasting pictures in terms of the extent to which young people accept the accuracy of information obtained from them. The overwhelming majority of research suggests that youngsters tend to believe without question the information presented to them by computer-based sources (McNicholas and Todd, 1996, Kafai and Bates, 1997: 109, Lyons et al, 1997: 20-21, Wallace and Kupperman, 1997: 23, Schacter Chung and Dorr, 1998: 847, 848, Watson, 1998: 1034, Hirsh, 1999: 1275, 1281). However, this is at variance with the findings of NCET (1996: 9, 52), whose work suggests that young people are inclined to query the information they encounter in electronic formats and to verify it against that in paper sources. A further contrasting argument is offered by Small and Ferreira (1994: 104) who conclude, albeit tentatively, that multimedia information presented in sound and video form may have *more* credibility in the eyes of youngsters than the same information shown in print.

Although the American high schoolers sampled by Jacobson and Ignacio (1997: 787) appear to have assessed the credibility of CD-ROM encyclopedias, the criteria they employed are questionable. Less detailed articles were regarded as more unreliable than more in-depth treatments but older pupils often considered authorship a significant factor in an article's authority. For some of the youngsters scrutinised by Hirsh (1999: 1271), the type of information source appears to have had a strong bearing on its credibility in the eyes of its users. Encyclopedias, for example, were generally trusted and their information valued.

4 OVERALL PATTERNS IN RELATION TO ELECTRONIC SOURCES

As NCET (1996: 9, 49) notes, many of the skills demanded in manual information-seeking are also a prerequisite for the use of electronic sources, despite the fact that, for the most part, youngsters assume the latter to be less onerous. Indeed, NCET suggests that the huge volume of information available renders the planning and refining of searches even more important when electronic media are utilised and greater demands are imposed on pupils' abilities to analyse the information output. Certainly, whether books or computers are used, an initial query must be formed and presented in a manner appropriate to the source. Research indicates that similar issues seem to emerge for inquirers regardless of the medium. In particular, Watson (1998: 1033) recognises that the act of generating a question for investigation differs little whether print materials or the Internet are used and she singles out this task as being particularly challenging. Neuman (1995: 293), too, identifies how, in an American survey, five of the ten problems perceived by respondents to be the most significant encountered by high school pupils using electronic materials were of a general nature and were not specific to computer-based sources. Youngsters especially have difficulty in tasks such as

designing an effective overall search strategy, formulating appropriate keywords and scanning the material they retrieve for the information they need or for that which appears relevant, particularly when the output is voluminous or when the content is poorly structured. Like users of books, seekers interacting with electronic materials easily become disconcerted when the reading level is inappropriate or too challenging. As Barlow, Karnes and Marchionini (1987: 71) observe, readers working with a demanding text struggle whether the medium is print- or electronic-based, although the fact that Gould and Grischkowsky's (1984: 335) research suggests that electronic text is read between twenty and thirty percent more slowly than that found on paper again implies that the former imposes greater demands.

Wallace and Kupperman (1997: 3) believe that youngsters using the Internet for information may be expected to exhibit behaviour that is not consistent with that of their counterparts working with books. These discrepancies may result from different characteristics of the information, the information-seeking process, the environment in which the searching is taking place, the task itself and the attitudes and beliefs that the youngsters bring to the activity. It is well known that youngsters experience problems that are specific to electronic media. For example, difficulties arising from the use of systems with multi-level hierarchies of information screens, the demands of understanding the system language and the employment of Boolean operators appear to recur frequently. Most studies, however, indicate that, despite the considerable deterrents facing users of computer-based sources and the demotivating technical deficiencies that particularly afflict users of the Internet, such as slow response times and loss of connection, electronic materials of any type are typically more popular than paper sources with youngsters. Furthermore, users appear to achieve some success even after very little instruction and past experience. This seems to be at least partly due to their tendency to adopt, where the system allows it, a basic browsing approach, in which they enter or even simply select broad keywords to retrieve information, rather than attempt to employ more specific terms in order to extract items that are fewer in number but more precise in subject.

CHAPTER SEVEN
MODELS OF INFORMATION BEHAVIOUR

This chapter sheds more light on youngsters' information-seeking behaviour, here by scrutinising appropriate models. After analysis of the different types of model, several models representing the behaviour of youngsters are presented. Models more generally concerning need and library inquiries, without specific reference to youngsters, are also reported. Further models pertaining to adult information-seeking follow. A concluding summary diagram orientates the different models investigated in the chapter in terms of their types (i.e. grounded, narrative or synthesised) and their subject emphases.

1 TYPES OF MODEL

For the purposes of this chapter, a model is understood to be a generalised representation of information behaviour, or a part thereof, such as information-seeking, and is conveyed via the identification and detailed description of its inherent characteristics or stages. An analysis of past work reveals four types of model:

- a) **instructional.** Whilst these offer a recommended approach that pupils should internalise and apply when finding and using information, they also provide the educator with a structured set of skills to be taught. Since they relate to the development of skills, rather than actual behaviour, instructional models are beyond the scope of the thesis, although, clearly, information behaviour is not innate and is partly the product of previous skills teaching;
- b) **grounded.** These differ from instructional models as they are evolved directly from research and do attempt to represent behaviour. Models that consist of several phases convey sequentially the actions usually undertaken or feelings generally experienced by study participants. Grounded models relating to youngsters include those of Kuhlthau (1988a: 236-40), Pitts (1994: 167-342) and Burdick (1996: 21-26);
- c) **narrative.** Like grounded models, these are found in accounts of actual research but whereas, in (b), the stages emerge from the data collected, here they are imposed by the investigator, primarily to provide a coherent progression when findings are reported. The models of Tabberer (1987: 65-125) and McGregor (1993: 68-112) are narrative in nature;
- d) **synthesised.** Models of this kind diverge from those of a grounded or narrative type in that they are not associated with specially-undertaken research. Instead, they are derived from analysis of past work. Fieldwork may, however, be conducted later to allow further investigation of the model. Synthesised models include those of Belkin (1980: 135-39), Wilson (1981: 7-8, 1999: 265-66, and Wilson and Walsh, 1996: 36-37), Krikelas (1983: 6-17) and Westbrook (1993: 544-46), although none relates specifically to young people.

2 MODELS SPECIFIC TO YOUNGSTERS

All models of this kind described below are based on pupils' information behaviour in an academic context, usually in terms of the production of a curriculum assignment. Many are action-based, listing, in sequence, the tasks typically undertaken by youngsters in relation to their location and, perhaps, use of information. Tabberer (1987: 65-125) offers a five-stage model embracing planning, finding information, using and presenting it and reviewing the work produced. Other investigators venture beyond merely delineating the actions within

information behaviour. Kuhlthau's (1988a: 236-41) information search process model, for example, addresses the emotions involved, as well as the activities. It consists of six stages:

- a) **task initiation**, in which pupils are introduced to an assignment and attempt to relate it to their prior understanding. In initially considering topics, they may talk to others and browse the library collection. At this stage, feelings of uncertainty and apprehension predominate;
- b) **topic selection**, the point at which a subject for the work is determined. Emotions tend to polarise; if pupils can reach a decision quickly, optimism may emerge but, if they are unable to do so, levels of anxiety increase;
- c) **prefocus exploration**, characterised by some degree of information collection so as to narrow the topic. Youngsters at this stage frequently experience confusion and doubt in their attempts to make sense of apparent inconsistencies in the sources they encounter;
- d) **focus formulation**, in which a specific area for investigation is identified. Optimism may again surface, as pupils gain confidence in their ability to complete the task. Kuhlthau regards this as a key stage within the search process;
- e) **information collection**, involving extensive use of the library and consultation of specific sources. Although realising the extent of the task ahead, pupils' confidence in their ability to complete the assignment usually remains and their interest rises;
- f) **search closure**, where youngsters draw their searches to an end, often as a result of lack of time or falling productivity. Pupils are likely to experience relief at completing the library search but, whilst some may feel satisfaction at its outcome, others are disappointed.

A key difference between the models of Tabberer and Kuhlthau is the latter's long-term emphasis. Tabberer's sequence may be applied to virtually any homework task demanding a significant amount of information, whereas a longitudinal perspective is more evident in Kuhlthau's model, with the assignment taking place over a prolonged period of possibly weeks.

Despite reporting some differences, McGregor (1993: 68-112), Bland (1995: 91-94) and Friel (1995: 68-121) have broadly confirmed the accuracy of Kuhlthau's process model in a range of contexts. McGregor particularly notes the varying levels of confidence shown by her pupils during the "topic selection" stage, although most expressed feelings of optimism. Nevertheless, she also highlights the fluid nature of the "search closure" phase, since the actual writing of an assignment may highlight deficiencies in what has been gathered and demonstrate the need to resume information collection. McGregor's study has a wider scope than Kuhlthau's model as it addresses a writing phase that immediately follows "search closure". This covers the activities directly involved in the creation of the end product. Whilst the emotions and behaviour of Bland's American high schoolers basically followed the Kuhlthau pattern, with the stages of "task initiation" and "topic selection" especially apparent, "prefocus exploration" and "focus formulation" were less marked and were interwoven with the "information collection" phase. Like Bland, Friel concluded that, for the most part, her youngsters - low achieving, American high schoolers - experienced the stages that Kuhlthau's model suggests, yet they did not always take place in a linear fashion.

Pitts's (1994: 167-342) model shares many similarities with that of Kuhlthau. Once more, it is essentially sequential and grounded in actual behaviour, again that of teenagers engaged in prolonged information-seeking for school work. Some of Pitts's stages are also analogous to those described by Kuhlthau.

This correspondence is shown in Figure C. However, the fact that Pitts addresses the construction of the ultimate assignment, in this case a video production, renders the scope of her project closer to that of McGregor's. A further difference is that, whereas the wording of Kuhlthau's phases is sufficiently unspecific to suggest that the model is of a generic nature, Pitts's reference, in her final stage, to the form of the ultimate product gives hers the appearance of one which is more context-indicative.

FIGURE C: STAGES WITHIN PITTS'S MODEL AND THEIR CORRESPONDENCE WITH THOSE WITHIN KUHALTHAU'S MODEL

| Pitts' stages | Kuhlthau's comparable stages |
|---|------------------------------|
| Selecting the topic | Topic selection |
| Refining the topic | Focus formulation |
| Identifying/establishing information needs | |
| Finding information to fill information needs | Information collection |
| Capturing information | |
| Choosing information | |
| Organising information | |
| Editing the videotape | |

Burdick (1996: 21-26), like Kuhlthau, addresses the emotional dimension of the information-seeking process but her model is radically different in three significant aspects.

- a) Whilst Kuhlthau isolates the major individual actions within a search, Burdick makes no effort to do so. The activities to which she does refer are of a much more general character.
- b) Whereas Kuhlthau's model is basically linear and sequential, Burdick's consists of categories within a matrix (reproduced in Figure D).
- c) Kuhlthau identifies a *common* pattern among individuals, yet Burdick also addresses their *differences*, especially in terms of search style and levels of motivation and focus. As Limberg (1999a) notes, most information-seeking models are of the Kuhlthau type, describing processes and behaviour generally with variations between individuals ignored.

In Burdick's diagram, levels of involvement, or motivation, are plotted horizontally against degrees of focus formulation (vertically). The latter may be considered an indicator of success during the project and the clearer the focus the more effective the pupil's information-seeking. The labels used to categorise the inquirers are based metaphorically on four varieties of travellers:

- a) **The Lost**, a small group who floundered when tackling the assignment required of them. They struggled to develop a focus and were generally either angry or apathetic;
- b) **Wanderers**, another small group who, although as unsuccessful as The Lost and equally unable to provide more than vague descriptions of their topics, enjoyed the information-seeking experience and felt satisfied on its completion;

- c) **Tourists**, who were able to narrow the focus to a degree and explored their topic chiefly via the collection of information. Their attitudes to the task ranged according to the individual from boredom to enthusiasm;
- d) **Navigators**, comprising around half of the pupils scrutinised. Burdick (1997: 31) outlines how the behaviour of these information-seekers was characterised by initial exploration of the general topic and the formulation of a focus that guided ensuing information collection. Levels of motivation among Navigators, however, were as varied as those of Tourists.

FIGURE D: BURDICK’S INFORMATION SEARCH STYLES MATRIX

| | | |
|--|---|---|
| RELUCTANT NAVIGATORS clear focus, negative involvement | DETACHED NAVIGATORS clear focus, flat involvement | INVOLVED NAVIGATORS clear focus, high involvement |
| RELUCTANT TOURISTS average focus, negative involvement | DETACHED TOURISTS average focus, flat involvement | INVOLVED TOURISTS average focus, high involvement |
| RELUCTANT LOST vague focus, negative involvement | DETACHED LOST vague focus, flat involvement | INVOLVED WANDERERS vague focus, high involvement |

3 MODELS NOT SPECIFIC TO YOUNGSTERS

3.1 Models of needs and library inquiries

In his seminal work, Taylor (1968: 182-83) traces the conceptual development of a need. He believes the initial, *visceral* need, to take the form of a “vague sort of dissatisfaction” that is “probably inexpressible in linguistic terms”. Gradually, a more *conscious*, mental picture emerges but any statement of the need may remain imprecise and ambiguous. Eventually, the description becomes more concrete or *formalised*, until, ultimately, the individual is able to present the need, in *compromised* form, as a question to a librarian or information system.

Like Taylor, Gross (1995) does not attempt to represent the information-seeking process per se. Instead, her concern is the “life cycle” of a particular type of library inquiry - that in which the need has emerged from an imposition made by a party external to the searcher. A library user may, for example, seek information in order to satisfy the demands of an employer, a teacher or a member of the family. Gross (1995: 237-40) defines six stages in the development of a query of this type:

- a) **initiated**: the query as represented by an imposer;
- b) **transferred**: the mutual understanding of the query as developed in the transfer process from the imposer to an agent;
- c) **interpreted**: the query as understood and stored by the agent;
- d) **negotiated**: the query as mutually understood by the agent and an intermediary;
- e) **processed**: the query as understood by the agent in the light of the resources used to respond to it;
- f) **evaluated**: the query as understood by the imposer in relation to the response provided.

Gross's outline is indicative, of course, of the actions within the information-seeking process itself and, although the model is applicable to a range of contexts, its relevance to young people is emphasised by Gross's (1995: 236, 239) description of how it may be understood in terms of a homework assignment. Here, she envisions that the imposer is a teacher and the agent a pupil asked to tackle an academic task. The latter, in seeking an answer, may interact with an intermediary in the library before ultimately presenting the teacher with the information obtained.

The opportunity for what Gross (1995: 239, 240) terms "mutation" at each stage is a key factor in the query's development. When the question is presented to the intermediary, for example, if he or she realises that it relates to an assignment set by a teacher, he or she may understand it in the light of his or her expectation of what the teacher requires and, ultimately, the ability of the teacher to receive meaningful information is dependent on the query having not mutated too far from what was originally intended. The situation is further complicated by the fact that, during the reference interview, the librarian is unable to work back to the origin of the need, since it is not the library inquirer who generated it. Burton (1998: 112) indicates that, in such a situation, youngsters "may not have a full understanding of the question themselves".

3.2 Needs-driven models

Although broadly concerned with information-seeking, Belkin (1980) and Dervin (1983) do not identify its inherent stages in the manner of Tabberer or Kuhlthau, nor do they, like Burdick, define categories of searcher. Rather, they perceive information-seeking to be a cognitive process best understood in terms of a person's state of mind when information needs emerge.

Belkin's (1980: 135-39) model takes the form of his ASK (Anomalous States of Knowledge) hypothesis, in which the trigger for information-seeking is a problem. In contemplating it, the individual realises that his or her existing knowledge is insufficient to provide a solution. The inadequacy may take many forms, including gaps, lacks, uncertainty or incoherence. The person seeks information in order to rectify such an "anomaly" and solve the problem. Initially, he or she may struggle to articulate precisely the information that is required. As Belkin, Oddy and Brooks (1982: 63, 66) write, it is common for an individual not to know in advance what is appropriate for his or her purpose, since it is the inquirer's very lack of knowledge that has prompted action. During the search, however, the information gathered causes the individual's state of knowledge to change and, increasingly, a clearer grasp is developed of what is required. Although the ASK hypothesis is synthesised, rather than grounded, and it was not designed with youngsters in mind, there are areas of similarity between it and Kuhlthau's model. Both, for example, recognise uncertainty in users seeking information and envision the individual becoming increasingly focused as progress is made.

In her sense-making approach, or "situation - gap - use" model, Dervin (1983: 9-17), like Belkin, begins with a situation in which a person's progress is halted by deficiencies in knowledge or understanding (i.e. sense). The cognitive gaps may take the form of questions, the answering of which requires appropriate strategies. These, in turn, may necessitate the location and use of information, which, by providing an answer to the question, bridges the gap and may then be put to the required use by the searcher. Dervin (1992a: 66) suggests that some inquirers who develop a specific course of action in response to their predicament subsequently employ it rigidly in comparable situations - "given this gap, then this tactic". As Dervin and Nilan (1986: 20-21) demonstrate, the general "situation - gap - use" model can be applied to understand

information behaviour in a range of contexts, and the situations in which the user is initially thwarted appear as applicable to young people as adults.

Wilson's (1999: 265-66) latest model shares a key similarity with those of Belkin and Dervin, in that he, too, believes information-seeking to begin with a problem situation. Once the problem is recognised, the person develops a more precise understanding of its nature, determines how an answer will be found and ultimately forms either an answer or a response to the problem. As the inquirer moves through these phases, uncertainty is progressively resolved but, if it is not alleviated at any stage, the individual may return to the preceding phase for further resolution. Like much of Wilson's work, the model draws heavily on the ideas of other writers, although its similarity to Belkin and Kuhlthau's models is most obvious in that Wilson envisions users' uncertainty diminishing as progress is made through the information-seeking process. However, unlike Kuhlthau's model, which is heavily library-oriented and relates to youngsters undertaking academic assignments over a prolonged period, Wilson's is applicable in a wide range of information-seeking situations and environments.

3.3 Action-based models

One of the earliest grounded models relating to adult information behaviour was devised by Taylor (1968: 181-82). It depicts the actions leading up to the information search in terms of key decisions made by the individual but does not delineate the course of the search itself. The model starts with an individual experiencing an information need and, in order to act upon it, he or she must first select a preferred channel. The problem may be discussed with a colleague or a more formal information search may be conducted. Should the latter course of action be chosen, the inquirer may choose to consult his or her own files. If the model is applied to youngsters, these may be interpreted as resources available at home. Alternatively, the option of seeking information in a library may be taken. The decision made may be based on factors such as the individual's previous experience and the perceived accessibility of the library. If the library-based route is pursued, the user will either request the assistance of an information specialist or make the search personally. Factors such as the inquirer's perception of the library personnel, their effectiveness and, again, his or her past experience will influence the choice made.

Rather than presenting a sequential model, Ellis (1989: 178-200) and his collaborators (Ellis, Cox and Hall, 1993: 359, Ellis and Haugan, 1997: 395-400), have identified a range of forms of information-seeking action undertaken by adult researchers. In their totality, the three studies define the following types of behaviour:

- a) **starting:** activities associated with the beginnings of the information search, such as the exploitation of informal contacts and previous knowledge to identify "starter references" and employment of tools such as library catalogues, abstracts and indexes. Starting may be considered to include the process of surveying, which Ellis and Haugan describe only in the final study. Surveying is seen to be specifically concerned with gaining an overview of literature in the field or locating the major "players" operating in the area;
- b) **chaining:** the use of references and footnotes within sources to allow the identification of a range of materials of potential value;
- c) **browsing:** semi-directed searching in an area of potential interest;
- d) **differentiating:** using differences between sources as the basis for decisions on their use or rejection;

- e) **distinguishing**: the ranking of sources according to the user's perception of their relative importance;
- f) **filtering**: involving the use of criteria or mechanisms to restrict the information retrieved to that which is most likely to be relevant;
- g) **monitoring**: the maintaining of awareness of developments in the field;
- h) **extracting**: the examination of a particular source in order to identify material of interest;
- i) **verifying**: the checking of information encountered for accuracy;
- j) **ending**: characterised by information-seeking tasks undertaken near the completion of a project, such as renewed investigation of sources to allow the individual to orientate his or her research in relation to past work.

Westbrook's (1993: 543-46) model differs from those of Taylor and Ellis in that it is based on previous studies rather than fresh fieldwork. Although each of its elements relates to action, Westbrook's model is concerned with generic behaviour, whereas Ellis's models may be considered more specifically skill-oriented. The model that Westbrook presents occupies the middle ground between the broadly sequential work of Kuhlthau and the more categorical approach of Ellis. Westbrook writes, "While somewhat sequential, these five actions can take place in virtually any order" and conceptualises information-seeking as "the interconnection of these activities". They are described below:

- a) **needing**, in which an individual recognises a requirement for information, perhaps in the manner described by Belkin in his ASK model;
- b) **starting**, where the first attempts are made to satisfy the need. Kuhlthau's "task initiation" and "topic selection" stages may be considered to represent "starting" behaviour;
- c) **working**, characterised by the inquirer actually addressing the need. Westbrook believes that the "prefocus exploration", "focus formulation" and "information collection" phases of Kuhlthau's model correspond to her "working" stage;
- d) **deciding**, the time when an individual determines to conclude his or her search, possibly as a result of a belief that the information collected meets the need that prompted action;
- e) **closing**, regarded by Westbrook to be the least commonly represented action in existing information-seeking models. She suggests that, at the time of her writing, only Kuhlthau had directly addressed this area.

A further model emerging from past work in the discipline has been synthesised by Krikelas (1983: 6-17). His stages are much more specific than those of Westbrook. He unites a range of concepts, each of which plays a role in the overall information-seeking process. Like Belkin, he explains how a person concerned about a problem seeks to reduce his or her uncertainty, which may have been caused by a particular event or a more general life situation. Some needs prompt purposeful action. Here the individual may seek information from memory, or via external sources, such as other people or materials containing recorded knowledge.

3.4 Contextual models of information-seeking

The 1981 and 1996 models of Wilson (1981: 7-8, Wilson and Walsh, 1996: 36-37) are again of a synthesised type but, instead of addressing actions within the information-seeking process, they are primarily devoted to contextual factors that contribute to it. This has prompted Wilson (1999: 252, 257) to describe these models as representing "macro-behaviour". Nevertheless, in the final phase of his 1996 model, the form that the search

may take is also indicated. This model shares some similarities with that of Taylor (1968: 182) as he, too, is concerned with the context of information-seeking but his emphasis on the inquirer's decisions in the pre-search phase renders it more action-oriented than Wilson's.

Wilson's 1996 model, like many, begins with an information need emerging from a particular situation. In order to alleviate any resulting stress and cope with the situation, the individual takes information-seeking action. These attempts may be thwarted, however, by three types of barriers - personal (such as psychological and demographic), role-related/interpersonal and environmental (including economic and source-related) - and the action taken shaped by the person's attitudes to potential sources, especially with regard to their accessibility and credibility. Factors in these areas may support information-seeking, however, as well as inhibit it. The effort made by the individual is influenced by the degree of benefit that he or she perceives will be enjoyed as a result of the search and the person's confidence in his or her ability to undertake the search successfully. Wilson (Wilson and Walsh, 1996: 23) considers that the information-seeking behaviour may take four forms - passive attention, passive searching, active searching or ongoing searching - but recognises that in most instances it is the third form that is generally employed. Although he is not concerned specifically with the processing and use of the information found, Wilson (Wilson and Walsh, 1996: 36) notes that the inquirer's work in this area may lead to further information needs.

4 SUMMARY DIAGRAM

Figure E overleaf orientates the models described above in terms of their essential characteristics - specifically their types, subject emphases and whether they pertain to youngsters or adults. Models referring to young people are shown in normal type and those devoted to adults in italics. Overall, the chart offers an insight into the areas covered in research and the manner in which they have been addressed, whilst blank areas draw attention to deficiencies.

FIGURE E: DIAGRAM SUMMARISING CHARACTERISTICS OF MODELS

| | | Type of model | | |
|-------------------|--------------------------------|--|--|--|
| | | Grounded | Narrative | Synthesised |
| Emphasis of model | Information needs | | | <i>Taylor (1968)</i> <i>Gross (1995)</i> |
| | Information-seeking | <i>Kuhlthau (1988a)</i> <i>Burdick (1996)</i> <i>Taylor (1968)</i> <i>Ellis (1989), Ellis, Cox and Hall (1993), Ellis and Haugan (1997)</i> | | <i>Belkin (1980)</i> <i>Dervin (1983)</i> <i>Wilson (1999)</i> |
| | Wider information behaviour | <i>Pitts (1994)</i> | <i>Tabberer (1987)</i> <i>McGregor (1993)</i> | |
| | Context of information-seeking | | | <i>Wilson (1981)</i> <i>Wilson and Walsh (1996)</i> |

CHAPTER EIGHT

METHODS USED IN STUDIES OF YOUNGSTERS' INFORMATION NEEDS

This chapter assesses the characteristics of past investigations into young people's information needs, beginning with comment on the specificity of the groups of youngsters scrutinised in the projects and discussion of the extent to which these studies have been devoted to broader matters of which information needs form only one component. A lengthy section is concerned with the strategies that have been employed by researchers when interviewing informants. This is followed by coverage of further issues surrounding data collection, and examination of different forms of data analysis and reporting.

1 SPECIFICITY OF GROUPS INVOLVED

Much of the limited research that has been undertaken into youngsters' information needs involves samples that have been drawn not from a wide spectrum of individuals but from highly particular subcategories. Participants within a project are typically united by common characteristics in relation to one or more of the following areas: their ages, the geographical areas in which they live, the school subjects they study, their educational institutions or even the classes they attend. Several projects sample youngsters drawn from schools within a certain location (Gratch, 1978: A37, A39, Hertfordshire Library Service, 1986: 16, Poston-Anderson and Edwards, 1993: 25) or even a single school (DuPree, 1989: 23). Latrobe and Havener's (1997: 188) sample is especially restricted, as all those taking part were members of the same school class. Fieldwork for other studies, however, has been undertaken in the wider community, in the hope of collecting data from a more diverse cross-section of youngsters (Murray, 1985: 55, Hill and Pain, 1988: 27).

2 "DEDICATION" OF STUDIES OF INFORMATION NEED

Since few projects addressing youngsters' information needs have been undertaken in Britain, the Department of National Heritage (1995: v) seems justified in its criticism of the inadequacy of research into this area. It should also be noted that, even in the studies conducted, coverage of information needs often forms merely one part of a work that also encompasses either the information-seeking behaviour of members of the group under scrutiny or patterns in their library use. The research carried out by Hertfordshire Library Service (1986) is more wide-ranging still, as it deals broadly with the habits and lifestyles of local teenagers.

3 TYPES OF NEEDS INVESTIGATED

Gratch (1978: 18-19), Murray (1985: 60-61), Poston-Anderson and Edwards (1993: 26-28), Walter (1994: 111-12) and Latrobe and Havener (1997: 188) examine the full range of information needs experienced by the youngsters in whom they are interested. They do not limit their coverage to needs of a certain type, such as curricular or recreational, nor do they confine themselves to those presented in libraries. More restricted studies include a later project by Edwards and Poston-Anderson (1996), devoted solely to young people's information needs with regard to education and jobs, and the work of Hill and Pain (1988: 30), who are exclusively concerned with "information sought in the library".

Overmyer's (1995: 39) discussion of the reference questions she has been asked in her capacity as a children's librarian offers some insights into the information needs of her local youngsters but they are based

purely on her experiences as a practitioner. Bennett (1998: 24) addresses a comparable area, albeit in relation to a different channel, when she describes the types of inquiries made by youngsters using an Internet "question and answer" service. True research within libraries into youngsters' reference needs, incorporating formal sampling procedures and data collection and analysis methods, remains rare, although Norton and Goodgion (1980) outline how, at the time of their writing, staff in the children's department of one library maintained a log documenting the types of information requested by youngsters. Grover's (1993: 95-96) model for diagnosing the information needs of library users incorporates a similar approach. After a first phase in which a systematic analysis is made of the community served by the library, the researcher then seeks to address individual information needs by scrutinising what is requested by clients during reference interviews. Close investigation of the information sought by youngsters is also a feature of a project by Gross (1997), who attempts to determine the numbers of queries that emerge from young people's own needs and those in response to their obligations to others. Like Grover, Gross (2000: 10) acknowledges the value of also making a general survey of local young people, examining such matters as the cultural and social groups to which individuals belong and their educational, recreational and informational opportunities.

According to Fourie (1995: 129), any statistical survey of young people's reference inquiries cannot provide a genuine study of their information needs, as the figures lack detail in terms of what is actually requested, the nature of the users and the purposes for which the information is required. The assumption is made, too, that demand is synonymous with need and, as Nicholas (1997: 343) notes, such a method entirely disregards non-users of the library. Furthermore, no insight is gained into needs addressed by youngsters through channels other than the library. The same charges can be made against the use of library issue statistics to assess young people's information requirements and, as Nicholas observes, feedback of this kind in relation to needs can be made only in terms of the existing collection. Faibisoff and Ely (1976: 5) suggest that, at best, the use of such methods can allow the library to determine user needs "inferentially". More fundamentally, Fourie and Kruger (1995: 226) argue that measurements of youngsters' use of particular information sources and channels are indicators of the *methods* they employ to satisfy their requirements, rather than the needs themselves. The criticisms of Fourie, Nicholas and Fourie and Kruger reflect a gradual shift in emphasis in research that has been observed by Cronin (1981: 37) and Dervin and Nilan (1986: 15). At the time of their writing, they detected increasing dissatisfaction among researchers with measures of external behaviour, such as the use of information systems, to gain an understanding of needs and a greater reliance on the investigation of people's internal cognitions and assessments. The more user-centred approach is in keeping with Faibisoff and Ely's (1976: 5) doctrine that studies of needs "should concentrate on *needs* rather than on the system supplying the needs". Eskola (1998) suggests that such a school of thought began to take root in the late 1970s and early 1980s.

4 STRATEGIES FOR THE PERSONAL DISCLOSURE OF INFORMATION NEEDS

As Walter (1994: 111) recognises, a framework of techniques for ascertaining youngsters' information needs has yet to be evolved. A hybrid approach is employed by Gratch (1978: 17-20), who, in conjunction with the use of questionnaires to obtain first-hand data, attempts to infer the information needs of young adults within an area from existing work examining their more general needs and problems. In their investigation, Fourie and Kruger (1995: 245) carry out no fieldwork at all, preferring instead to draw upon child development

theories.

Despite the assertion of Nicholas (1997: 344) that studies in which data has been obtained from the subjects themselves do not follow a common approach, Poston-Anderson and Edwards (1993: 25, 26) and Latrobe and Havener (1997: 189) note the contribution of Dervin (1976b, 1982, 1992b, Dervin et al, 1976) in providing a basis for the investigation of information needs and their projects adhere to her principles, even though Dervin's works to which they refer do not deal with youngsters specifically. The line of questioning pursued in projects can generally be seen to take one of the following three routes, the last of which may be regarded as the Dervin model upon which much research relating to youngsters has been based:

- a) **the help chain**, developed from techniques pioneered by Dervin (1992a: 72). This strategy begins by focusing on the individual's use of a particular information source or system. The respondent is then asked how whatever or whoever was consulted helped to satisfy the need. Thus, the researcher works in reverse chronological order until the need is properly understood. The use of help chains as a questioning method is rare in studies of young people's information needs. If the strategy is employed exclusively, the problem emerges that only those needs in relation to which the individual has taken action are addressed;
- b) **information-oriented**, in which attention is immediately focused on the information that has been or might be sought by individuals, sometimes via a certain channel or within a particular environment, such as a library. Little emphasis is generally given to the *context* of the need and, as with measures of external behaviour, attention is principally directed towards *action*. According to Dervin et al (1976: 26), much early research was of this nature. Users of the approach include Gratch (1978: 18), Hertfordshire Library Service (1986: 21), Hill and Pain (1988: 30), DuPree (1989: 30, 42), Latrobe and Havener (1997: 190) and Hayter (1998: 32). Typically, these studies are devoted to information needs that have been felt recently. Gratch (1978: A36) and Murray (1985: 60) have taken a different line, however, asking participants about their likely future requirements.

- Walter's (1994: 117-19) research is unusual in that it presents an external perception of young people's information needs. In a study devoted to what Bradshaw (1972: 640) labels "normative needs", data was collected solely from adult professionals who worked with youths in various capacities. Each was asked to identify "the primary information needs of children", especially within the context of his or her own work. Green (1990: 69-71) questions the ethical soundness of allowing one particular group to express the needs of another, and draws attention to the possible fallibility of those consulted. The prospect of "informant error" must be seriously considered if one accepts the argument of Harris (1983: 437) that "young adults do not typically articulate their needs and interests to institutions". Gratch (1978: 20) is less dubious of the method, arguing that "anyone who works with young adults and talks and listens to them would have no trouble listing the concerns and problems about which they need information". Walter (1994: 117) defends her approach on the basis that children's information needs are "largely determined and supplied by adults", and a similar view is taken by Farrell (1974: 143). Walter (1994: 113) further asserts that children, with their limited "experience of the world, lack the frame of reference to articulate many of their most pressing information needs. Adults must articulate those needs for them". Here it must be noted that the youngsters with whom Walter was concerned were only ten years of age, and were younger than those who have been investigated in many studies of youngsters' information needs;
- c) **life-centred**, in which information needs are ascertained via probing of participants' problems, worries or

concerns. This approach has been employed by Poston-Anderson and Edwards (1993: 26), who acknowledge that their method owes much to a strategy devised by Dervin et al (1976: 26-27) for their investigation of the information needs of Seattle citizens. Dervin's team was among the first to address information needs within the context of life concerns, an orientation emphasised by the intentional absence of the word, "information", from the first section of their questionnaire so as to stop the respondents' perceptions of the concept limiting the range of their responses.

It would appear that, by either emphasising or omitting the word, "information", the information-oriented and life-centred approaches elicit quite different types of data. The latter seems to promote the collection of data relating to needs for soft, "subjective information" - ideas required by the user within highly personal, problem solving situations - as well as requirements for "objective information", defined by Dervin and Nilan (1986: 13) as "something that has constant meaning and some element of absolute correspondence with reality". Poston-Anderson and Edwards (1993: 26-28), for example, show how the needs experienced by their participants included requirements for "empathetic understanding" and causal factors and motives with regard to relationships. In contrast, the information-oriented perspective appears better suited to the gathering of data relating to needs for "objective information". It may be no coincidence that Latrobe and Havener (1997: 191), who took an information-oriented line, write that their youngsters tended not to report seeking information "when dealing with issues that they felt were personal and subjective and, therefore, unique to their individual situations".

An obvious characteristic of many of the studies, whichever approach they adopt, is their primary concentration on the *recent* experiences of those in the sample group. As Chen and Hernon (1982: 25-26) note, this helps to minimise the risk of participants misrepresenting the circumstances or events they describe as a result of lapses in memory.

5 METHODS OF COLLECTING DATA FROM PERSONAL SOURCES

Questionnaires and interviews have formed the major data gathering methods in investigations of the needs of youngsters. The former have been utilised, for example, by Gratch (1978: 18-19, A36), Murray (1985: 56), Hertfordshire Library Service (1986: 16), DuPree (1989: 23, 40-43) and Latrobe and Havener (1997: 190), whilst Hill and Pain (1988: 26-27) conducted interviews based on a questionnaire in which a mixture of multiple choice and open-ended questions were asked. Latrobe and Havener limited the data to be supplied by their respondents in terms of their information needs to the relative frequencies with which they required different categories of information within the period in question. Similar requests for respondents to indicate their responses to predetermined types of information have been made by Gratch (1978: 36), Hertfordshire Library Service (1986: 21) and DuPree (1989: 42). All six questionnaire-based studies have employed an information-oriented line of questioning.

Despite the fact that Nicholas (2000: 111) believes that interviews are superior to any other form of data collection, their use in investigations of youngsters' information needs has, traditionally, been less common than that of questionnaires. Nevertheless, they have been employed by Poston-Anderson and Edwards (1993: 26) and Walter (1994: 117), who pursued a flexible, explorative approach. Taking a life-centred line, Poston-Anderson and Edwards directed considerable attention to the specific concerns and circumstances of the participants.

6 SAMPLE SIZE AND SAMPLING METHODS

Several studies have sampled hundreds or even thousands of youngsters (Murray, 1985: 56, Hertfordshire Library Service, 1986: 16, Hill and Pain, 1988: 27) and in some instances the selections of individual participants have been made randomly. Many projects are characterised by much smaller samples, however. If the individuals are drawn from a highly specific group, such as a certain class within a school, it may be possible to collect data from each person (Latrobe and Havener, 1997: 188). Drawing their samples from larger units, Poston-Anderson and Edwards (1993: 25-26) employed a purposive approach, choosing individuals after advice from adults familiar with them. Whilst Walter's (1994: 117) study is atypical in using data contributed by informants outside the population of interest, here, too, their selection was based on a purposive approach.

7 DATA ANALYSIS AND REPORTING

In many research reports, the proportions of sampled youngsters experiencing given categorised information needs are conveyed via basic statistical measures such as percentages, with further analysis, explanation or exploration of the figures provided in a complementary commentary before the investigator addresses the participants' information-seeking action. Again, however, Walter's (1994: 119-23) work is unusual in that, rather than offering a conventional breakdown of the number of recorded needs within individual categories, she presents a hierarchy of information needs resembling Maslow's more general hierarchy of human needs.

The degree of naturalism in reports of youngsters' information needs varies considerably, and the disparities often reflect differences in the scope provided by the researchers to allow the participants to use their own words. This is especially true of the reports of Latrobe and Havener (1997: 190-91) and Poston-Anderson and Edwards (1993: 26-28). Both express in category form the information needs felt by youngsters, but in the former case the subjects of need were predetermined constructs, whereas in the latter work categories were formed by coding the data *after* the respondents had been given free rein to describe their life concerns. Nicholas (2000: 112) criticises the manner in which recipients of questionnaires are frequently "shoehorned" into using the language of the research instrument and, in the work of Latrobe and Havener, the report itself reflects the terminology of the questionnaire. Although Poston-Anderson and Edwards, like Latrobe and Havener, incorporate statistical measures including means and percentages, their descriptions of individual instances and use of the words of the participants render their report essentially naturalistic and markedly different from that of Latrobe and Havener whose interest lies in uncovering more general patterns of need.

CHAPTER NINE

METHODS USED IN STUDIES OF YOUNG PEOPLE'S INFORMATION-SEEKING

This chapter investigates issues of method that may be identified within research into youngsters' information-seeking. Over a dozen matters of this kind are discussed, among them the purposes of such a study, data collection techniques, sampling strategies, forms of data analysis and generalisability/transferability of findings. The chapter closes by indicating how the products of this "methods review" were applied to the empirical study, especially in terms of its design.

1 PURPOSES OF STUDIES

If projects dealing with young people's information-seeking are categorised on the basis of their aims, they may be considered to fall into one or more of seven categories:

- a) **vocational.** Here the investigator - a practising teacher or librarian - aims to learn more about the information-seeking of the youngsters with whom he or she comes into contact as a result of his or her job, in order to further their skills in this area. An example of vocational research is the early work of Baldwin (1992: 25-26);
- b) **instructional.** The researcher is again a teacher or librarian but, in this case, wants to instil information-seeking skills into his or her charges. Whilst teaching, the practitioner develops insights into pupils' information behaviour. Instructional research diverges from the other forms of investigation in that the data gained is incidental to the teaching process. Instructional studies include the work of Mallett (1992);
- c) **beneficial.** Although their emphasis is less personal than in vocational research since the investigator is not concerned with the development of specific youngsters, beneficial projects again aim to collect data the use of which will ultimately enable young people to be more successful in their information-seeking. Projects by Kuhlthau (1988b: 271) and Latrobe and Havener (1997: 188) include a strong beneficial element;
- d) **system/service-oriented.** The work here is usually intended either to inform the design of a certain system or service, often one of an innovatory nature, or to evaluate its effectiveness. Where the subject in question is a system, this frequently involves IT, as in the work of Marchionini (1989a: 64-65), NCET (1996) and Moyer and Sambucci (1998);
- e) **informational.** Common in the discipline, informational studies broadly seek to enhance knowledge and understanding of young people's information-seeking but the anticipation that the work will inform future practice is merely implicit;
- f) **verificational.** This research validates in new contexts results of previous work that may or may not be the investigator's own. It could involve testing whether patterns apparent in one setting are repeated in another. Kuhlthau is heavily associated with verificational work;
- g) **subsidiary.** Insights into young people's information-seeking may emerge in studies devoted to a broader or related area. For example, projects predominantly concerned with reading habits or the use of libraries, such as work by the Children's Literature Research Centre (1996) and Hayter (1998), may also provide some coverage of youngsters' information-seeking, especially in terms of the channels and materials they employ.

The concepts of vocational, informational, verificational and subsidiary research are also appropriate when examining the purposes of studies of youngsters' information needs.

2 FOCI OF INQUIRY

Projects devoted to young people's information-seeking address at least one of two areas:

- a) the “where”/“what”, in which the preferences of individuals are investigated in terms of the providers and sources they exploit. Many studies of this type are highly quantitative;
- b) the “how”, in which process and especially the user's actual interactions with sources are emphasised. Dervin and Nilan (1986: 14) term work of this kind “atomistic”. Where paper sources are involved, the projects are typically qualitative and often rely heavily on observation within school libraries or classrooms. They usually aim either to ascertain how effectively youngsters exploit materials or to identify the strategies they employ.

To an extent, division of research projects into the two above categories is artificial. Whilst the distinction is justified in that the subject focus of work within the two groups is different, they in fact address contrasting ends of the same continuum, with “where”/“what” studies devoted to the identification of the sources exploited and “how” investigations concentrating on the manner in which information is found through their use.

3 CONTEXTUAL SCOPES

3.1 Pupils' academic work

Latrobe and Havener (1997: 189) believe that research focusing on young people's behaviour in response to given tasks is the norm in studies of their information-seeking. Many of these activities are undertaken in an academic context and generally involve one of the following:

- a) preparation of work on a specific topic, using predominantly paper sources. The same subject may be allocated to a whole class, or greater freedom may be given to pupils in choosing their own. The many examples of this approach to provide insights into young people's information-seeking include projects by Kuhlthau (1988a: 234), Moore and St. George (1991: 163), McGregor (1993: 43) Pitts (1994: 8, 118), Bland (1995: 25), Friel (1995: 71), Lewis, Wray and Mitchell (1995: 10) and Gordon (1996: 28). The work of youngsters engaged in a curriculum project forms an attractive context for studies of information-seeking as it provides a ready-made subject focus and one that is likely to be sufficiently broad for pupils to operationalise via a set of questions for investigation;
- b) the practising of Information Skills, again in relation to paper sources. Here the skills are addressed in their own right, instead of emerging within a subject-based project (Paterson, 1981: 12-13, Moore, 1988). The activities scrutinised in studies of this kind may either be staged specifically for the research or form part of an existing teaching programme. In each case, since the youngsters' work is highly prescribed, the scope of the findings is limited. Still, the impositions allow pupils' responses to specific demands to be assessed directly;
- c) the retrieval of information via IT through applications such as remote encyclopedias, CD-ROM and Internet. Although the search subject is often imposed by the teacher (Bilal, 1998: 48, Large, Beheshti and Breuleux, 1998: 346-48, Schacter, Chung and Dorr, 1998: 843-44), sometimes a less restrictive stance is taken (Eastman, 1986: 209, Bland, 1995: 38-40, Lyons et al, 1997: 8). Research into pupils' more general

information-seeking behaviour for school projects has also offered insights into their use of electronic resources (Pitts, 1994: 240-41).

3.2 General information-seeking

Studies of information-seeking beyond the confines of tasks at or for school remain relatively rare but work in this area has been conducted by Amey (1985a: 45-49), Murray (1985: 56-61), Poston-Anderson and Edwards (1993: 26-29) and Latrobe and Havener (1997: 190-97). Latrobe and Havener (1997: 188) argue that this wider understanding is vital for the successful design of information services that “are integrated into the larger patterns” of youngsters’ lives.

4 SPATIAL EMPHASES OF “ATOMISTIC” STUDIES

4.1 Library-based

Insights into information behaviour in the library emerge both in the context of programmes of Information Skills instruction and in examinations of pupils’ more subject-oriented work in this environment. The projects of Moore (1988) and Moore and St. George (1991), Kuhlthau’s (1988b) information search process model and her developmental commentary of young people’s information behaviour (Kuhlthau, 1988c) all involve youngsters in libraries. As indicated previously, understanding of the levels of exploitation of particular information channels has also been gained from library-based investigations. Much research has focused on the use of certain bibliographic tools, especially computer catalogues (Edmonds, Moore and Balcom, 1990, Chen, 1993, Solomon, 1993, Borgman et al, 1995, Hirsh, 1997). More general studies of youngsters’ information-seeking have also provided some analysis of OPAC-related behaviour.

4.2 Classroom-based

Very little information-seeking research has been devoted to school projects that take place mainly or entirely in the classroom, although examples include Baldwin (1992), Wray and Lewis (1992) and Lewis, Wray and Mitchell (1995).

4.3 Cross-locational

In the mid 1980s, Varlejs (1987: 70) identified a shift from materials-centred to information-centred research. Certainly, there has been increased interest in the different environments visited by youngsters seeking information, and reduced emphasis on the levels of demand for specific materials in a given library. Even where young people’s information-seeking is investigated within the confines of a particular curriculum project, coverage has not always been restricted to resources in library or school settings. McGregor (1993), Pitts (1994) and Limberg (1999a) explore the variety of information-seeking methods used by youngsters undertaking academic assignments. Further coverage of the whole information universes of their respective subjects is apparent in the studies of Amey (1985a), Poston-Anderson and Edwards (1993) and Latrobe and Havener (1997). Here the researchers do not specifically focus on information-seeking to satisfy school obligations.

5 RESEARCHER'S INVOLVEMENT

Where work at school forms the focus, the researcher's role may fall into one of three groups.

- a) The investigator is involved in tasks like selecting the environment in which the fieldwork is to take place, collecting and analysing data, drawing overall conclusions and writing up the project but the work tackled by the youngsters is prepared and administered by another party, usually a practising teacher or librarian (Lewis, Wray and Mitchell, 1995: 10).
- b) The study is the result of collaborative planning between the researcher and a practitioner operating in the organisation in which the fieldwork takes place (Mallett, 1992: 47, Perzylo and Oliver, 1994: 147).
- c) All work for the project - its planning, administering and reporting - is undertaken by one party. In this context, studies by practitioner-researchers, such as Davies (1985) and Moyer and Sambucci (1998), are common.

The individualist nature of (c) is also characteristic of research in which data is gathered during or in the aftermath of "natural" information-seeking activity which is not necessarily related to work at school. The research tasks undertaken in terms of identifying a focus for the inquiry, selecting a fieldwork site, defining the sample, collecting and analysing data and reporting the findings are again administered by a single party.

6 FORMS OF RESEARCH

6.1 Longitudinal

Vakkari (1997: 451, 457) recognises the increasing popularity of longitudinal work, and cites Kuhlthau as a particular proponent. Kuhlthau (1989: 21) has pioneered the use of "process surveys" to explore changes in the thoughts and feelings of those engaged in information-seeking work, and her technique has subsequently been utilised by several researchers, including Friel (1995: 48) and Burdick (1996: 20). Gordon (1996: 28), Limberg (1998: 28, 1999a) and Hirsh (1999: 1268, 1280) employ a comparable longitudinal approach. A more long-term perspective has been taken by Lewis (1989: 151-53), who traces the library and information behaviour of one American child from Kindergarten to Fourth Grade.

6.2 Series of investigations

Kuhlthau's determination to refine and verify her information search process model in relation to a variety of participants and environments has led to a sequence of studies (Kuhlthau, 1989: 20-22). Kuhlthau (1988c: 51-52) has also, however, combined findings from different projects in order to synthesise an original study. Her examination of young people's developmental use of libraries is based on the results of two of her investigations, involving fieldwork with elementary and high school pupils respectively.

6.3 Single instance, single study

This description, which may be applied to most research into young people's information-seeking, involves approaching or observing participants once during the data collection phase. When published, the report stands in its own right and no attempt is made either to incorporate the findings into a wider programme of investigation embracing further fieldwork or to use them in a different context, with other research, to provide a newly-synthesised study.

7 DATA COLLECTION METHODS

7.1 Individual techniques

7.1.1 Questionnaires

Questionnaires are a popular method of data collection, and, in some studies of young people's levels of library use (Roberts, 1969: 129, Murray, 1985: 55-56, Hertfordshire Library Service, 1986: 16, Fourie, 1996: 206), form the sole data gathering technique employed. This is particularly the case when large samples are involved. In most "atomistic" research, however, they are used in concert with other tools, if at all. Questionnaires are usually given only to youngsters, although in the study, "Utilization of a Microcomputer in an Elementary School Learning Resource Centre" (1983: 4), they were completed by children and teachers. The vast majority of questionnaires have been in paper form but, in October 1999, the "SmartGirl.com Reading Survey" (Chance, 2000: 20) asked youngsters to complete an electronic version appearing on a Web site.

7.1.2 Observation

Observation is widely used in "atomistic" projects devoted to young people's information-seeking. The tack taken by investigators varies from the passive to the interactive. The former was adopted by Marchionini (1989a: 57), who, when observing use of an electronic encyclopedia, "answered no questions and made no comments once the searches began". This stance contrasts with that of Solomon (1993: 248), who was also concerned with IT exploitation. His initial intention to take a non-interactive posture was upset by the pupils, who, in seeking his advice and asking questions, prevented him from assuming such a passive role. Solomon's response was to integrate his observing and questioning processes.

7.1.3 Focus groups

The use of focus groups to collect data on young people's information-seeking is less common than that of individual interviews and, although Pitts (1994: 71), Borgman et al (1995: 670, 673), Gordon (1996: 28), Hayter (1998: 24, 29) and Dobson (2000: 26-27) all employ them, in each case they form only one of several methods. Whilst eschewing conventional focus groups, Friel (1995: 60) collected data from a whole class discussion.

7.1.4 One-to-one interviews

Another of the most frequently used methods of gathering data on young people's information-seeking, particularly in "how" studies, individual interviews are, again, seldom the only technique employed. This is, however, the case in work by Watson (1998: 1027), who admits that one of its shortcomings is that, by using only one method, she cannot verify the accuracy of the participants' data. Although the focus of interviews varies from study to study, a recurring theme lies in the use of questions based around a specific incident in the life of the informant, who is asked to outline why, in this situation, a certain approach was taken to locate information (Poston-Anderson and Edwards, 1993: 26, Latrobe and Havener, 1997: 190). Many studies incorporating an interview element involve conversations only with youngsters but McGregor (1993: 50), Oliver and Perzylo (1994: 224-25), Pitts (1994: 72), Gordon (1996: 28) and Limberg (1999a) are among those who interview pupils and school staff alike.

7.1.5 Think aloud protocols

Think aloud protocols are a relatively new data collection method in “atomistic” studies of young people’s information-seeking. They are similar to interviews in providing an insight into participants’ minds although, if they are tape recorded, do not require the presence of an investigator. McGregor (1993: 54) exploited this characteristic in order to gather data on the behaviour of youngsters in the home environment. Elsewhere, they have been employed by researchers in a library context (Moore and St. George, 1991: 163) and in studies devoted to the use of IT (Solomon, 1993: 248, Wallace and Kupperman, 1997: 10, Fidel et al, 1999: 25, Hirsh, 1999: 1269, Walker and Moen, 2000).

7.1.6 Pupil journals and logs

These tend to be used only in projects concentrating on information-seeking sustained over a prolonged period for the production of a school assignment, and have been scrutinised by, among others, Kuhlthau (1988a: 234, 1988b: 272, 1989: 20), McGregor (1993: 51-52), Friel (1995: 48), Burdick (1996: 20) and Gordon (1996: 28). They are, once more, generally employed in concert with other methods.

7.1.7 Pupil timelines

Timelines are especially associated with Kuhlthau’s (1988a: 235, 1988b: 271-72) work on the information search process. She describes how, in a longitudinal study, participants were asked to construct timelines depicting the search process they experienced, thereby providing a conceptual map of their perceptions of the search. The “research process continua” drawn by McGregor’s (1993: 51) teenagers are comparable to Kuhlthau’s timelines.

7.1.8 Youngsters’ work and assignment materials

When the focus is an academic assignment, analysis of finished work is common in “atomistic” research into young people’s information-seeking (Liebscher and Marchionini, 1988: 228, Perzylo and Oliver, 1994: 150, Gordon, 1996: 28, Large, Beheshti and Breuleux, 1998: 349). The work provides evidence of the contribution that the information-seeking activity has made to the end result of the pupils’ endeavours. Its integrity as a source of data may be greater than that of pupil journals, since the work is a natural information-seeking outcome, and is not instigated by the investigator. Occasionally, attention has been concentrated on the pupils’ references/bibliographies, through application of citation analysis techniques (Mancall and Drott, 1979: 225, Mancall and Deskins, 1984: 8, Craver, 1987: 75-76). Work examined by McGregor (1993: 51-52) and Pitts (1994: 73) was not limited to the finished product, however, and Bland (1995: 44) and Friel (1995: 49) have used teachers’ assessments of pupils’ work to determine the degree to which the youngsters were successful in their information-seeking. Perhaps the most formal approaches to this form of data collection have been taken by the “Utilization of a Microcomputer in an Elementary School Learning Resource Centre” project (1983: 4), Eastman and Agostino (1986: 50), Marchionini and Teague (1987: 150-51), Pitts (1994: 73) and Small and Ferreira (1994: 101). Here pupil tests were administered to ascertain how much learning had taken place after information-seeking activity.

7.1.9 Records of computer keystrokes

User behaviour-related data recorded by the software employed by youngsters is often examined in projects scrutinising the moves made by those seeking information from electronic sources. The technique has, for example, been used by Eastman and Agostino (1986: 50), Marchionini and Teague (1987: 143), Edyburn (1988: 258), Marchionini (1989a: 56-57, 58, 1989b: 598), Borgman et al (1995: 670) and Schacter, Chung and Dorr (1998: 840, 844). The raw data is usually subjected to a range of statistical tests.

7.2 Combinations of methods

Not only has the employment of multiple data collection techniques in a single study become commonplace but these are not always associated with one particular research paradigm. Indeed, Latrobe and Havener (1997: 188) used questionnaires for quantitative data dealing with behaviour and interviews for qualitative data on each youngster's "perceived information universe". Burdick (1996: 20) has taken a similar approach.

Solomon (1993: 248), Oliver and Perzylo (1994: 223) and Hirsh (1999: 1268) all claim to be using qualitative methods, although the reports of Solomon and Hirsh contrast with that of Oliver and Perzylo in that they include a surprising amount of quantitative information for studies purporting to be naturalistic.

8 SAMPLING

8.1 Methods of selection

In projects undertaken by practising teachers or librarians and involving classes of pupils with whom they come into contact as part of their everyday employment, the concept of a "sample" appears contrived since convenience and the professional's interest in the youngsters dictate those to be investigated. Where the researcher is external to the school, purposive sampling is common and may take place at several levels, including the selection of the school itself, of the year group(s)/class(es) within it and of individual pupils, with, in each case, the rationale for the technique reflecting the aims of the study. Selections of individual youngsters are often made in consultation with appropriate adults (Poston-Anderson and Edwards, 1993: 26, Wallace and Kupperman, 1997: 9, Schacter, Chung and Dorr, 1998: 843).

Although extensively used, purposive sampling has not been universally adopted. Random methods have been preferred by Heather (1981: 24), Hertfordshire Library Service (1986: 16), Edyburn (1988: 256), Wray and Lewis (1992: 20), Chen (1993: 34), Fourie (1996: 206), Gross (1998: 88) and Hirsh (1999: 1269) but the technique remains rare in "how" studies, where small numbers of participants are generally involved. Rarely do researchers admit to employing a "convenience sample", yet Watson (1998: 1027) makes such a confession, and Friel (1995: 51) acknowledges that the particular class of pupils she sampled was selected "because of availability". Pragmatic issues were also responsible for Eastman and Agostino's (1986: 50) selection of the class to be involved.

8.2 Sampling of institutions

"Where"/"what" studies generally involve fieldwork in either one library or a limited number, although some investigations have been undertaken in schools, whilst "how" projects, which are typically smaller scale in nature, more usually involve fieldwork in only one school. Where the latter is the case, the sample is often drawn from a certain class (Liebscher and Marchionini, 1988: 227, Baldwin, 1992: 25, Mallett, 1992: 47, Pitts,

1994: 67, Friel, 1995: 50, Lewis, Wray and Mitchell, 1995: 10, Gordon, 1996: 28, Latrobe and Havener, 1997: 188, Large, Beheshti and Breuleux, 1998: 347, Limberg, 1998: 28). If several institutions do participate in a single “atomistic” investigation, they are generally of similar type, as well as being located within the same geographical area (Paterson, 1981: 11, Wray and Lewis, 1992: 20, Poston-Anderson and Edwards, 1993: 25, Large et al, 1994: 501, Edwards and Poston-Anderson 1996: 209, Kafai and Bates, 1997: 105-06). Some researchers have sampled contrasting environments, however, to provide either a comparison or a balanced sample (Fasick and England, 1977: 41, Heather, 1984c: 3, Tabberer, 1987: 8-9, 13-62, Children’s Literature Research Centre, 1996: iii, NCET, 1996: 20, Fieguth and Bußmann, 1997).

8.3 Sampling of individuals

8.3.1 Sample size

Large samples, consisting of three-figure numbers of youngsters, are normally found only in projects that heavily use questionnaires, and where interviewing is not a major data collection method (Amey, 1985a: 44, Murray, 1985: 56, Hertfordshire Library Service, 1986: 16, Burdick, 1996: 20, Fourie, 1996: 206, Chance, 2000: 20). Samples are smaller where interviewing or observation figure more prominently. If the study involves information-seeking for a curriculum project, the sample is usually restricted to the number of pupils in one class.

Several investigations target a small number of participants in order to obtain detailed data, although they are also concerned with patterns within a larger sample (Kuhlthau, 1988b: 269-70, 1989: 20-21, Cole and Gardner, 1979: 169, 170, Gordon, 1996: 28). Lyons et al (1997: 8-10), Wallace and Kupperman (1997: 9), Watson (1998: 1026), Fidel et al (1999: 25) and Hirsh (1999: 1268) all employ sample groups of ten or fewer members.

8.3.2 Composition

8.3.2.1 In terms of age

In the early 1990s, Wray and Lewis (1992: 19-20) and Grover and Fowler (1993: 243) identified a lack of research into the information behaviour of primary-aged children. Their comments remain true today. The lower half of the age range, in particular, is still virtually unexplored, with the work of Lavender (1983) and Davies (1985) forming two of the rare projects examining the use of information books by pupils under eight. For the most part, youngsters comprising the sample groups in “atomistic” studies of information-seeking are limited to those within a single year group or perhaps two. Clearly, the more specific the focus of the research, the more difficult it is to involve youngsters of different ages.

8.3.2.2 In terms of ability

Ability levels of the individuals scrutinised vary from one project to another. Several investigators draw samples from youngsters of similar ability. These have included groups of high achievers (Craver, 1987: 66-67, Marchionini and Teague, 1987: 141, Kuhlthau, 1989: 20, Marchionini, 1989a: 57, McGregor, 1993: 40-41, Hirsh, 1995, Latrobe and Havener, 1997: 188) and groups of pupils of average and below average ability. (Chen, 1993: 34, Pitts, 1994: 92-93, Friel, 1995: 50). Nevertheless, the use of samples of mixed ability youngsters is more common (Cole and Gardner, 1979: 168, Heather, 1984c: 3, Agostino, 1986: 209, Edyburn,

1988: 256, Kuhlthau, 1989: 21, Marchionini, 1989b: 596, Moore and St. George, 1991: 163, Poston-Anderson and Edwards, 1993: 26, Lewis, Wray and Mitchell, 1995: 10, Wallace and Kupperman, 1997: 9, Schacter, Chung and Dorr, 1998: 843, Fidel et al, 1999: 33).

9 PROVISION FOR PARTICIPANT/RESEARCHER COLLABORATION

Few researchers other than Solomon (1993: 248) and Fidel (1999: 25) report offering their youngsters opportunities to verify the accuracy of their accounts of the young people's perspectives. Nevertheless, a similar collaborative atmosphere has been fostered by Poston-Anderson and Edwards (1993: 26) who, during the course of their interviews, asked informants to help them ensure that their questions were readily comprehensible and they sought comments from the youngsters about their feelings and perceptions of the interview.

10 EXTENT AND TYPE OF SUPPLIED "THICK DESCRIPTION"

10.1 In relation to the sample

The data most commonly supplied in relation to the sample covers the ages of those selected and some indication of their ability levels, perhaps indirectly, via references to the classes they attend. The reports of McGregor (1993: 43-44) and Latrobe and Havener (1997: 189) also provide statistical detail of the male/female balance within the group and the latter states the ethnic mix within it.

10.2 In relation to the organisation and surrounding area

Lincoln and Guba (1985: 316) highlight a lack of consensus in terms of the areas that should be addressed when providing background data within a qualitative study. Reports of young people's information-seeking differ markedly in the detail given as regards the nature of the organisation(s) and geographical area in which the fieldwork has taken place. Wray and Lewis (1992: 20) disclose no organisational information apart from that their study was conducted in "three primary schools in the local area". Often, however, where the institutions are schools, investigators offer an indication of their geographical locations and even briefly describe the surrounding area and the socio-economic status of inhabitants. Comments may also be made on the population's racial and ethnic balance (Wallace and Kupperman, 1997: 7). The details typically given about the organisation include the phase and type of school and the ethnic composition of pupils. Further information may be provided depending on the project's focus.

11 METHODS OF DATA ANALYSIS

Many studies have generated much quantitative data, which has been analysed via statistical tests. Poston-Anderson and Edwards (1993: 26) integrate quantitative and qualitative data analysis in one project, employing "Minitab" software when dealing with responses to closed questions in an interview in order to generate statistics, whilst inductively coding data elicited by open questions. The researchers explain how they developed coding frames in response to the specific data collected in order to ensure that the perspectives of their informants were accurately portrayed. This approach is typical of much naturalistic research in the discipline, some of which has utilised computer software to facilitate the coding process (McGregor, 1993: 60, Pitts, 1994: 76).

12 STYLES OF REPORTING

12.1 Structuring of content

The manner in which a report is structured frequently reflects the forms of data collection and analysis employed. Particular curriculum projects, leading to insights gained by unstructured observation and without any formal data analysis methods being involved, may be related from a chronological perspective. In the reports of Baldwin (1992) and Lewis, Wray and Mitchell (1995), pupils' activities and behaviour are presented in a story-like narrative. Other accounts outline the study and its findings in relation to particular issues. This more structured mode of reporting is often indicative of a greater attention to methodology.

12.2 Qualitative and quantitative accounts

The degree to which a research report is qualitative or quantitative again tends to reflect the methods of data collection and analysis used. For example, the fact that Borgman et al (1995: 671-76) include much numerical detail in their account demonstrates the team's attention to the "hard data" captured by the online monitoring system within the software under scrutiny, whereas Oliver and Perzylo (1994), although also addressing IT use, present a less statistically-oriented picture consistent with their reliance on more qualitative forms of data gathering and analysis. A further significant difference lies in Oliver and Perzylo's (1994: 227-28) references to actual comments made by the youngsters when searching. Once more, this is a typical feature of naturalistic reporting. Mallett (1992: 52) even goes so far as to include reproductions of pupils' work. If it is true that qualitative research is principally characterised by the use of highly specific data relating to or gained from a few individuals, the work of Lewis (1989: 151-53), who concentrates much of her report on one particular child, must be considered among the extremes of qualitative research.

13 GENERALISABILITY/TRANSFERABILITY

Investigators are generally reluctant to address the issue of how far their findings may be applied to wider situations. Where the matter is covered, a cautious line is often taken in qualitative research, with researchers suggesting that their limited samples restrict generalisability. Whilst indicating that more research is needed if her findings are to be applied to other schools, Gordon (1996: 28) proposes that the small size of her sample should not prevent the transfer of her findings to other schools that exhibit similar characteristics to that in her study. Her concern with congruent "sending" and "receiving" situations is shared by Eastman and Agostino (1986: 50), McGregor (1993: 13-14) and Pitts (1994: 11), who urges further research in order that generalisable conclusions may be drawn from its entirety.

14 OUTCOMES OF THE REVIEW

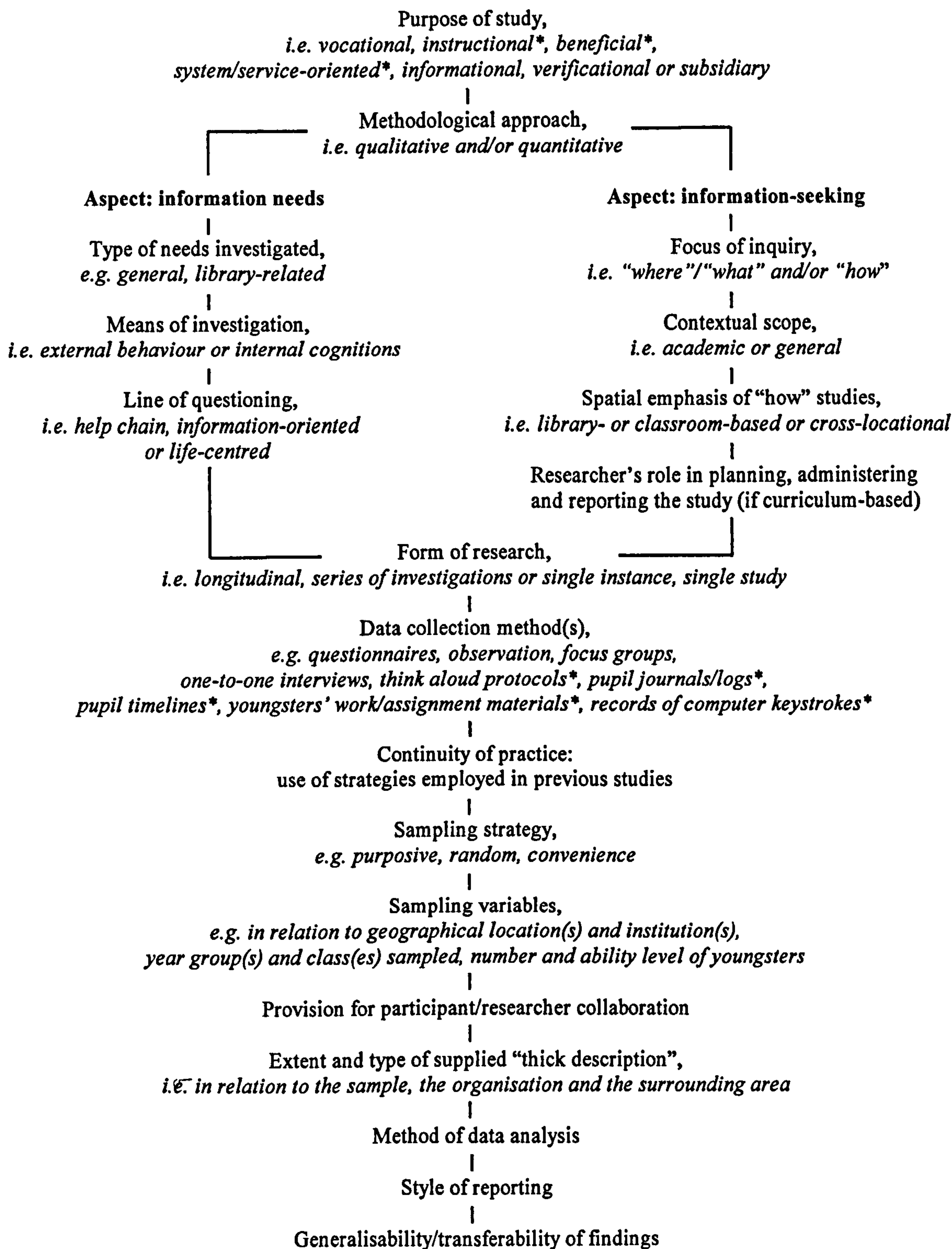
The areas addressed in this review emerged after analysis of the salient characteristics of past studies into young people's information-seeking. So as to provide an overall summary of the methodological issues that have been addressed, Figure F was assembled. Issues dealt with in research into youngsters' information needs have also been incorporated into the diagram. Such integration is appropriate given that many projects address both dimensions, at least to some extent. Furthermore, as can be seen from the chart, the issues shown in the lower half are themselves applicable to research into both areas. The diagram may be used in two capacities:

a) as a descriptive tool, revealing at a glance the essential characteristics of previous work;

b) as a planning aid, stipulating aspects that should be considered in the design of a new project. The research forming the subject of this thesis was itself prepared with the aid of the diagram and was thus informed by the knowledge gained in relation to existing work.

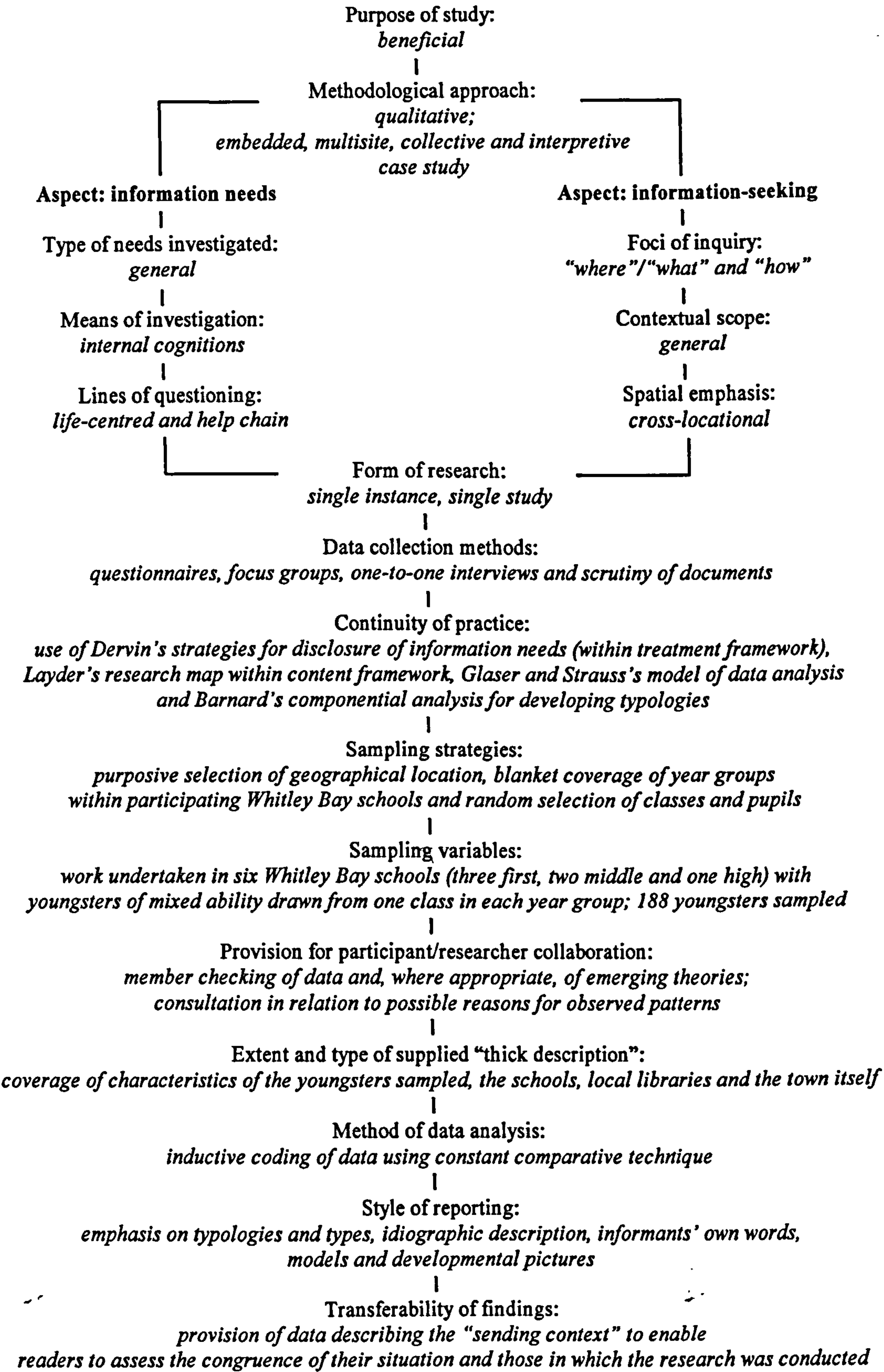
Figure F's framework was subsequently applied to the project in terms of the first area; after completion of the research design, its features were considered against each of the areas covered. The resulting summary, presented in Figure G, depicts the essential characteristics of the investigator's work.

FIGURE F: METHODOLOGICAL ISSUES WITHIN STUDIES OF YOUNG PEOPLE'S INFORMATION NEEDS AND INFORMATION-SEEKING BEHAVIOUR



* indicates issues/methods that are mainly or exclusively associated with studies of youngsters' information-seeking.

FIGURE G: CHARACTERISTICS OF OWN STUDY IN TERMS OF INFORMATION NEEDS AND INFORMATION-SEEKING STRANDS



PART III:
STUDY METHODS AND THEIR EXECUTION

- Chapter Ten - The Research Design and its Implementation
- Chapter Eleven - The Study's Position on the Positivist/naturalistic Continuum
- Chapter Twelve - Provisions for Trustworthiness
- Chapter Thirteen - The Operational Detail of Data Gathering in the Field

CHAPTER TEN
THE RESEARCH DESIGN AND ITS IMPLEMENTATION

This chapter extends coverage of the empirical element of the study by moving from the methodological issues introduced in Chapter Two to lower level matters of method. It guides the reader through the techniques employed in the project, starting with the ways in which its emphases on changing patterns during childhood and on young people's own perspectives led to the adoption of particular approaches. The weaknesses, as well as strengths, of the methods applied are acknowledged. Much of the chapter is concerned with data collection issues, sampling decisions and the data analysis strategy employed.

1 TREATMENT OF THE RESEARCH QUESTION

Just as a case study approach was adopted in response to the nature of the research question, the project's emphases on changing patterns through childhood and the ideas of youngsters themselves demanded the use of particular strategies:

1.1 With regard to changing patterns during childhood

Allison (1996: 16) recognises that two approaches are available in a developmental study:

- a) **longitudinal**, in which the same people are investigated at intervals over a prolonged period;
- b) **cross-sectional**, in which samples of individuals of different ages are taken.

Since the work is devoted to youngsters from four to eighteen and the project's duration was to be a mere four years, the first option, with the long-term nature of the data gathering stage, was impractical. Furthermore, since the data would have to be collected over fourteen years, any observed changes could be due as much to changes in the world at large as to the young people's own development. It was decided to utilise the cross-sectional approach within a multisite case study confined to one particular locality. In this way, data could be collected over a much shorter period, and concentration on one geographical area would prevent resources becoming spread too thinly.

Since data is elicited from different individuals at different developmental stages, Smith (1981: 361) suggests that the findings of cross-sectional studies are open to more alternative explanations than those of longitudinal work. Consequently, care must be taken when matching informants across the different sites. Another problem is that, since the world in which modern teenagers experienced their early years of schooling was very different from that in which today's four- and five-year-olds operate, discrepancies between the two eras might be responsible for differences in the current information-seeking behaviour of both parties. Today's teenagers have spent a large part of their school lives without even an awareness of the Internet, and their attitudes to it may be expected to differ from those of young children who cannot remember a time before its existence. However, this shortcoming is outweighed by the fact that, using the cross-sectional approach, in which data is collected over months rather than years, the prevailing situation with regard to technology at the time of data gathering is similar for all the youngsters sampled.

1.1.1 Past studies

The word, “information”, as it is understood by youngsters of any age is virtually unexplored. Indeed, remarkably little attention has been paid to how any groups within society perceive terms such as “information”. Nevertheless, a range of writers, including Wersig and Neveling (1975: 129-32), Dervin (1976b: 325-26), Faibisoff and Ely (1976: 2-3), Farradane (1976: 99-100), Levitan (1980: 242-44), Wilson (1981: 3-4), Dervin, Jacobson and Nilan (1982: 419-21), Nitecki (1985: 387-93), Dervin and Nilan (1986: 13, 17), McGarry (1993: 1-6), Hord (1995), Kemp (1997: 51-52), Eskola (1998), Orna (1999: 8) and Choo (2000: 245), have attempted to examine the concept themselves. The perspective taken, however, has generally been academic, at times almost philosophical.

Research devoted to ongoing patterns in youngsters’ information needs is also scarce. Although the area is covered by Kuhlthau (1988c) and Fourie and Kruger (1995), their papers deal with the subject primarily from the standpoint that changes in needs emerge as a result of biological progress. Murray (1985: 60-61) is one of the few investigators to address need development from a subject-based perspective, although her fieldwork involved only twelve- to eighteen-year-olds. Some insights are also offered by the Children’s Literature Research Centre (1996: 216) but the true focus of its work lies in youngsters’ reading habits.

In terms of information-seeking, the projects that most closely exhibit this study’s developmental approach are those of Davies (1985) and Kuhlthau (1988c), each of which utilises a cross-sectional sample. Davies’s work is more limited in age range than Kuhlthau’s, which encompasses phases from early childhood to adolescence. The most fundamental difference, however, between these works and the thesis project is that the former are not concerned with information behaviour *in context*. Rather, they examine the skills of which youngsters are capable *in isolation* from the actual situations requiring their application. Kuhlthau’s work is also restricted to the library environment. Whilst Murray (1985: 58-59), Hill and Pain (1988: 31-33), the Children’s Literature Research Centre (1996: 214-19) and Hayter (1998: 34-66) offer some coverage of developmental information-seeking, they are mainly concerned with *where* youngsters find information and *what* they use rather than *how* they do it. Patterns pertaining to OPACs and the Internet are reported by Solomon (1993) and Kafai and Bates (1997) respectively but, in each instance, the research is confined to the American elementary school phase.

1.2 With regard to young people’s perspectives

This study is not devoted to the “objective” reconstruction of interactions with information systems, nor to the exploration of those aspects of biological/psychological development which drive youngsters to seek information. Rather, it stresses young people’s *own* perceptions of their behaviour with regard to information. These characteristics of the study are typical of what Hord (1995) believes to be a key feature of the *hermeneutic* approach - an interest in meanings as they are understood from the point of view of participants involved in social interaction. Clearly, data had to be collected from youngsters themselves and address *their* recollections of information encounters, as well as their reasoning behind their actions. Only events that had naturally occurred in the youngsters’ lives were scrutinised; no attempt was made by the researcher to impose information activities and collect data in relation to the participants’ responses. As Pitts (1995: 178) observes in the context of her own work, “Setting up an artificial information problem would result in obtaining information only about that artificial situation and not about the decisions students make in real life.”

Schwartz and Jacobs's (1979: 7) view that the purpose of a qualitative study is to "know what the actors [in a particular social world] know, see what they see, understand what they understand" lies at the heart of this investigation. The aim is thus *Verstehen*, or, a sympathetic understanding of the situations of youngsters undertaking information-seeking activity. It is this dimension that provides much of the study's originality. Work devoted to information-seeking as revealed by youngsters' own perspectives is very limited, perhaps because it combines two elements which, in themselves, have received relatively little coverage. Kuhlthau et al (1990: 29) wrote at the onset of the 1990s that, in the library and information field, "very little is known about what goes on inside the user", and Mauthner (1997: 26) suggests that research into the lives of youngsters is still in its infancy.

1.2.1 Past studies

Emphasis on youngsters' own words to develop an understanding of their information needs is unusual. Even when a self-reporting method has been used in fieldwork to gather data from youngsters, the focus has often been to uncover general patterns, with specific circumstances left unexplored (Gratch, 1978: 17-20, Murray, 1985: 60-61, Hill and Pain, 1988: 30, DuPree, 1989: 30-32, Children's Literature Research Centre, 1996: 216, Latrobe and Havener, 1997: 190-91). The more personal approach of Poston-Anderson and Edwards (1993: 26-28) is closer to that employed in this study yet even here a qualitative methodology is compromised by the inclusion of statistical measures.

Although not widely adopted, the technique of using young people's own words in order to investigate their information-seeking behaviour is more common but projects of this kind usually differ from the work presented here either in relation to the purposes for which the information sought by the youngsters is to be utilised or in terms of the information environments or materials used by them. It may, for example, concentrate exclusively on information-seeking for an academic assignment, the use of IT or work in a library. The scope of research by Poston-Anderson and Edwards (1993: 28-30) is more wide-ranging, although sampling was restricted to teenage girls. In its information-seeking dimension, the scope of the thesis study is broader than previous projects, since it investigates youngsters of a wide variety of ages, in pursuit of information in a multiplicity of environments, for a diversity of purposes, using sources of a range of kinds.

1.2.2 Data gathering methods

The aim of data collection was to obtain raw material for the construction of a rich picture of young people's information universes. At an early stage it was determined that the youngsters' articulations should be the major source of evidence. This decision was based on the principle that conversation may be used to probe the understandings, or "perceptions", of members of the group of interest. As Smith (1995: 10) writes, what is said by a person "is part of their ongoing self-story and represents a manifestation of their psychological world".

The actual techniques selected - the focus group and one-to-one interview - appeared most suitable for developing the sympathetic understanding demanded by the study. Patton (1990: 278) suggests that they are ideal "to find out what is in and on someone else's mind". The value of interviews specifically in studies of information-seeking is highlighted by Kuhlthau (1988b: 269), who argues that they "allow subjects to explain action and to elaborate on perceptions which lie behind action". Focus groups were seen to have their own particular appeal. Bogdan and Biklen (1998: 100) note how they afford an effective method of initially drawing

the researcher into the world of the participants. They would also prove effective for identifying areas of consensus and difference among youngsters of different ages.

A final consideration in the adoption of the focus group and individual interview was their general applicability, both in terms of the study's three content areas and the ages of the participants with whom they could be used. In relation to the latter, Beer (1989: 170) describes how "even young children can provide rich verbal accounts of their own experiences and of their understanding of the world around them". In England, the National Curriculum (Department for Education, 1995b: 4) requires that pupils as young as Reception age receive in school a grounding in articulating their views and experiences to a range of audiences. The abilities of many youngsters are further refined, of course, in domestic situations. The use of the same data gathering techniques for all the samples also provided a methodological consistency, which could be seen to enhance the study's trustworthiness.

1.2.2.1 Problem areas with interviews

Despite the appropriateness of the interview method, several weaknesses that might affect the data obtained must be acknowledged. Moore (1995: 24) indicates that conversation may provide only a partial insight into youngsters' thoughts because when information-seeking processes produce the desired results they take place almost on a subconscious level. Moore alerts researchers to the tendencies of dialogues with young people to focus primarily on the difficulties that inquirers experience since they are at the forefront of their minds. Interviewing is also poorly suited to informants who are inarticulate, have limited language skills, lack the confidence to speak out or are too nervous to answer fully. Perhaps most importantly, there is no guarantee that interviewees will always be honest and open. In the context of their own research into young people's information-seeking, Cole and Gardner (1979: 191) and Wray and Lewis (1992: 22) write that there may be marked discrepancies between youngsters' stated courses of action in finding information and their actual behaviour. Nevertheless, it was believed that a collaborative atmosphere would limit deliberate falsehoods, and iterative questioning should reveal any attempts to mislead. Admittedly, since a large part of the interviews would relate to particular experiences that the youngster would recount, much would depend on his or her memory of the recent past. Stott (1989: 37) explains how the ability to recall is not uniform throughout school-aged young people. Indeed, he asserts, it tends to improve with age. McLane (1989: 52-53) concurs, arguing that, although the memory of young children is generally as accurate as that of their older counterparts, they are more likely to make errors of omission. It appears that it is only when the age of around eleven is reached that children's recall approaches adults' level. It is thus unrealistic to expect the accounts of Reception youngsters to be as rich in detail as those of Sixth Formers.

1.2.2.2 Problem areas with focus groups

Shortcomings specific to focus groups must also be recognised. Morgan (1988: 16, 20-21) believes the "unnatural social setting" to be a key weakness, suggesting that their contrived nature may implant in the researcher "some residual uncertainty about the accuracy of what the participants say". The youngest participants might feel intimidated by older members, and all youngsters were thought likely to be unfamiliar with the concept of discussing specific subjects in small groups with colleagues not of their age. Peer group pressure is considered by Krueger (1994: 213) to be especially prevalent in focus groups of young people, with

some individuals concealing their true ideas and experiences in order to conform to those of the majority. Difficulties also often emerge in data analysis, which may be hindered by the wide-ranging content of the material collected.

1.2.2.3 Alternative methods

1.2.2.3.1 Observation

The technique of observation is heavily associated with qualitative research and, in a follow-up study, could play a role in determining how far youngsters' stated information-seeking actions are corroborated by their actual behaviour. Nevertheless, its use in this project was rejected on several grounds. Whereas the chosen methods may be employed to investigate all three content strands, as Faibisoff and Ely (1976: 5) note, observation can elicit "very little information about the subject's needs". It is also incompatible with the project's emphasis on the youngsters themselves since it is based on the perspective of the investigator. Such a characteristic is noted by Lashbrook (1986: 204, 205), who distinguishes between *emic* and *etic* tools. The former, he suggests, elicit meanings as held by participants, whereas the latter provide data that the investigator may structure "from his or her own point of view". Lashbrook contrasts the *emic* nature of interviews with the *etic*, outside perspective offered by observation. As observation can be carried out only in certain settings, the method is difficult to reconcile with the aim of investigating young people's information behaviour regardless of location. The action of selecting a particular site for observation itself requires the researcher to make assumptions about the information-seeking behaviour of youngsters, most fundamentally that the chosen environment is actually used by them. In addition, unless specific individuals are targeted, the danger explicated by Silverman (2001: 234) arises that those observed may be unrepresentative of the broader population of interest.

1.2.2.3.2 Diaries

As a means of gaining insight into the thinking of others, participant diaries are of greater value than observation but they, too, were rejected for many reasons. Because of the demands they make on writing ability, they are inappropriate for young children. This formed a key consideration, since the study aimed to collect data from youngsters of four to eighteen using similar methods. The effort required to maintain the journal could also form a deterrent to potential participants. If volunteers were requested, the allegation could again be made that the sample might not comprise "representative" youngsters. In addition, Wood (1969: 268) and Davis (1971: 8) draw attention to how individuals may not maintain an ongoing record of their information-seeking after each activity but "catch up periodically", at a later date when many of the details have been forgotten. The accuracy of the data is thus questionable. According to van Manen (1990: 67), any requirement to write about events, rather than talk about them, encourages a more reflective attitude that may "make it more difficult to stay close to an experience as it is immediately lived". Moreover, although guidelines could be supplied to participants, the researcher has little control over the depth of data provided by them, and no means of exploring any emerging questions that relate to it. Similarly, the lack of interaction prevents the researcher from probing the accuracy of the data.

1.2.2.3.3 Think aloud protocols

In her study of the thinking processes of teenagers producing school assignments, McGregor (1993: 54-57) recognised at an early stage that much of their work would take place in environments inaccessible to her. A similar issue emerged in the thesis study. McGregor's response was to instruct her youngsters to tape record their thoughts when carrying out their activities. Serious problems arose with the method, however. Some pupils were simply unable to perform the task even though they had been given training, whilst others experienced technical problems in using the tape recorders. In view of the method's limited success and the fact that most of the pupils involved in the thesis project would be younger than McGregor's teenagers, the use of think aloud protocols was rejected. Cognisance was also taken of the work of Sullivan and Seiden (1985: 15), who employed the technique when investigating Higher Education students. The authors consider that task design "is essential to achieving useful protocol results". Within this study, since the "tasks" of interest were activities emerging from real needs experienced by the informants, they were not created by the researcher and, consequently, the control over events that Sullivan and Seiden believe to be pivotal to the success of studies employing the technique of think aloud protocols could not be exercised.

2 THE NATURE OF THE PRIMARY SAMPLING UNITS

A multistage sampling method based on that described by Moser and Kalton (1971: 106-11) and Anderson (1987: 153), and actually adopted by Dervin et al (1976: 33), was used to converge on the individuals from whom data was collected. The first stage involved selecting schools within the case study location. These may be considered the "primary sampling units" that Moser and Kalton describe.

Precedents for using school pupils in studies of young people's information-seeking are well established (see Chapter Nine). In this study, the decision was taken to converge on youngsters via their schools for

- a) **sample population reasons**, involving the composition of the pupil population within. The education system, with its schools of successive phases, brings together many youngsters within a locality, thereby providing a large potential sample population. Young people of all ages from four to eighteen are represented, and youngsters of varying abilities and from a range of backgrounds are not only found within a particular school but are also usually united within individual forms. Researchers such as Gratch (1978: A37) and DuPree (1989: 23) attest to the value of schools in providing access to a diversity of youngsters;
- b) **logistical/administrative reasons**, relating to the manner in which schools are organised. The system of forms within most schools is based on the ages of the pupils. The fact that the youngsters are classified in this way, which is directly compatible with the study's cross-sectional nature, rendered the use of schools especially appropriate. The *school - year group - form - pupil* hierarchy is also a structure upon which a multistage sampling system can be developed to converge progressively on the young people from whom data would be collected. Furthermore, the static nature of a school's arrangement of forms during an academic year is useful if the researcher has to make return visits to see particular youngsters who were unavailable when initially sought during the data collection phase, as it renders them easily traced. The long hours within which schools are open in term time, from around 9.00 a.m. to approximately 3.30 p.m., provided a further attraction as a lengthy period of potential access is available to the investigator;

c) **contextual reasons**, in which the ethos of schools, the buildings themselves or the materials within them offer some particular benefit to the researcher. As both the researcher and schools are involved in education, a certain congruity emerges between the two parties. The investigator's presence is perhaps less intrusive here than in a leisure-oriented environment like a youth club. More specifically, the characteristics of the schools participating in the study, especially in terms of their methods of supporting their pupils' learning, provide a background against which informants' information-related attitudes and behaviour may be seen. If it is true, as Lincoln and Guba (1985: 189) maintain, that no phenomenon "can be understood out of relationship to the... context that spawned, harbored, and supported it", then the use of schools as primary sampling units is particularly appropriate, since influences such as the school's provision of information sources and the formal teaching of information skills may be investigated first-hand, through examination of in-school documents and dialogues with staff, in order to explore how these might contribute to the young people's attitudes and behaviour, which are not, therefore, seen simply in a vacuum. Similarly, particular curriculum content and its delivery, as apparent in programmes of study and schemes of work, may be responsible for certain information needs.

2.1 Problems associated with using schools

The timing of fieldwork raises several problems, some of which may directly affect the data collected. One of these is the fact noted by Heather (1984c: 3) that it is difficult to find a period in the academic year that may be considered "typical". Other issues arise in terms of the pupil population within schools. By sampling pupils, the geographical emphasis of the research shifts from young people living in the area of the case study to youngsters who go to schools there. Although, for the most part, the latter are also inhabitants, the schools within the chosen place may be attended, too, by some youngsters from outlying regions. Conversely, some of the young people from within the case study area will be educated outside it. Indeed, with today's emphasis on parental choice, it is common that some of those living in an area are not necessarily educated within it. In addition, schools provide an incomplete cross-section of youngsters. Sixteen- to eighteen-year-olds who have left school, for example, are unrepresented, and youngsters of school age but not within mainstream education, such as the physically or mentally handicapped or those with behavioural problems, would again be outside the range of the study.

The project was originally intended to examine the general body, "young people", but, when it was decided that schools should be used to converge upon the youngsters to serve as informants, it was realised that the group under investigation might more accurately be termed, "school children". Thus a different focus population - pupils of schools within the case study area - was defined as a direct consequence of the type of population coverage offered by the chosen sample frame. Moser and Kalton (1971: 155) consider such a shift to be a legitimate tactic in resolving the problem of "missing elements" that arises when a particular sample frame is seen not to include all the population initially intended to be covered.

3 CHOICE OF VENUE FOR FOCUS GROUPS AND INDIVIDUAL INTERVIEWS

A natural corollary of the employment of schools as primary sampling units was the decision to stage the data collection dialogues in the schools themselves. Any attempt to use other premises could lead to complications, notably that parents might be more reluctant to allow their children to take part. Arrangements would have to

be made for transport and for booking an appropriate room in a local building. During the sessions, youngsters' lack of familiarity with the surroundings could impede their responses. In contrast to rooms hitherto unknown to the informants, their school premises constitute young people's regular working environment.

Nevertheless, the staging of dialogues in youngsters' own schools is not without negative effects. Krueger (1994: 214) suggests that focus groups comprising teenagers, especially, may be more successful if they take place outside institutions run by adults who are responsible for making and enforcing rules. In the project described in this thesis, the danger also emerged that, because of the nature of the organisations in which the fieldwork took place, the researcher would be equated with a teacher. Indeed, Rich (1968: 58) believes that any child/adult dialogue within a school tends to adhere to the characteristics typical of a pupil/teacher relationship. It was feared, too, that the honesty of informants might be inhibited by a belief that their responses should be appropriate to a school situation and consequently their information needs, especially, might be restricted to the academic dimension. Such problems have also been encountered by Heather (1981: 22) and Hayter (1998: 27) in their own research. So as to address this issue in the thesis study, it was decided that the line of questioning adopted must emphasise the researcher's interest in experiences from the *whole* of the youngster's life, not merely his or her time at, or work for, school.

4 THE CONVERGENT SAMPLING PROCESS:

FROM CHOICE OF LOCATION TO SELECTION OF YOUNGSTERS

In order to meet the needs of the study, several sampling strategies, drawn from the positivist and naturalistic research paradigms, were adopted. Figure H shows how these were used in concert at different levels.

FIGURE H: SAMPLING STRATEGIES USED IN PROJECT

| Sampling stage | Strategy | Main justification(s) |
|---|--|--|
| Selection of geographical area | Purposive sampling | To reduce problems of access and to permit sampling of pupils from four to eighteen |
| Selection of schools within area | Self-selection | Necessity |
| Selection of year groups within schools | Blanket coverage | To give balance to the sample by including informants from every age group |
| Selection of forms within year groups | Random sampling | To provide each form with an equal chance of selection |
| Selection of pupils within forms | Random sampling (of pupils meeting criteria) | To help ensure that unknown factors are spread through the sample and to increase the likelihood of the chosen pupils being representative of their individual forms |

As can be seen, the work employed random methods, which are typically associated with the positivist paradigm, and purposive sampling strategies, which are characteristic of naturalistic work. Although the extent to which it is legitimate to combine qualitative and quantitative techniques is a subject of debate, the

researcher subscribes to Patton's (1990: 181, 186, 486) view that such combining is legitimate if different purposes must be met within the same project. The investigator may be regarded as a "situationalist" of the type defined by Rossman and Wilson (1985: 630), using methods which he believes are suitable to the particular demands of the study. Other proponents of a dual approach include Layder (1993: 109-15) and Sutton (1993: 417).

4.1 Selection of geographical location

The geographical location nominated for the fieldwork was the town of Whitley Bay in north eastern England. No claim is made that findings in relation to Whitley Bay could be transferred to the whole school population of the country. Rather, its selection was the result of purposive sampling based on several considerations. Given the study's emphasis on changes in information-seeking behaviour during childhood, Whitley Bay appeared highly appropriate. In January 1998, as part of a European Union project, one of the town's two high schools introduced its Grid for Learning - a local intranet - for use by schools of all phases within Whitley Bay. It was hoped that concentration on this town could allow some investigation of the ways in which pupils' use of this resource changed as they moved through the education system. In terms of sampling benefits, because both Whitley Bay high schools incorporate Sixth Forms, the researcher would have the opportunity to draw upon youngsters up to and including eighteen years of age within the case study town.

According to Gorman and Clayton (1997: 85), the most important factor in choosing a fieldwork location is to select one whose "gatekeepers" will grant access. Although permission for this project could not be assumed, the fact that the researcher had spent several years teaching in Whitley Bay, and in so doing had developed a network of contacts, placed him in a stronger position when requesting access than if he were an outsider. Indeed, during the fieldwork, the Headteacher of one school (HT/D-2/II/18) admitted that if the investigator were not known to him personally, he would have been less willing to grant access to his organisation. Stake (1994: 243, 244) urges case study researchers to devote their attention to situations where opportunities to learn are greatest and emphasises how such learning is jeopardised when fieldwork is conducted in inhospitable environments. In this context, it was hoped that, if "gatekeepers" within the fieldwork sites knew the researcher, they would be willing to allow not only access to their schools but also scrutiny of internal documents. Failure to consult these materials would reduce the strength of the study and the extent to which learning on the part of the researcher could take place.

Obviously the use of schools within a single town limits the breadth of the study but it was feared that by drawing samples from schools in several areas resources would be stretched too thinly and it would be unlikely that pupils from each year group could be included.

4.2 Matching of the samples

The decision to pursue a cross-sectional approach demanded the use of samples of pupils of varying ages, with criteria employed to ensure some degree of similarity in their background. Preece (1994: 102) writes that such matching is a key procedure in accounting for factors that are known or suspected to have an effect on the phenomenon under investigation. The process adopted here involved sampling only pupils who had spent all their periods of education in Whitley Bay schools. This principle derived from the researcher's knowledge that, as a result of regular meetings in which ideas for practice were shared, all schools within the case study town

had certain common assumptions with regard to their teaching of Information Skills. Such teaching might influence the ways in which pupils sought information and it was felt that the informants contributing data should share some commonality in this area. Whilst Dewees (1987: 31) notes that the tighter the control of variables the fewer the questions that emerge when evaluating results, the danger of imposing rigorous matching is highlighted by Moser and Kalton (1971: 221), who recognise that the tighter the selection controls the greater the restriction in the study's population coverage and thus, in this case, the more particular are the findings to a very limited number of schools and their pupils. Consequently, the decision was made that the study should utilise the single matching criterion relating to the schools attended by the youngsters.

4.2.1 Investigation of Whitley Bay schools

In order to ensure that the schools approached to take part in the fieldwork all served the case study town, North Tyneside's Head of School Services was asked to identify those that formed the Whitley Bay Pyramid. Potentially, any of the fourteen schools she listed might be sampled. It was considered important to involve as many schools within Whitley Bay as possible since Creswell (1994: 159) asserts that results shown to be repeated across different case study sites are more likely to be accepted than those pertaining to a single setting. Bryman (1988: 88) and Schofield (2000: 79) offer a similar view.

The fourteen schools formed the subject of a preliminary survey, the principal aim of which was to investigate their feeder patterns by developing a greater understanding of how, at transfer level, these schools interacted with each other. Middle and high schools were asked to state how many of their pupils new in September had come from particular feeder schools, and first and middle schools were requested to indicate how many of their pupils leaving the previous July had moved on to certain destination schools. Basic data was also gathered on how forms within the schools were structured, thereby allowing the researcher to begin tentative planning for his fieldwork.

4.2.1.1 Use of questionnaires

A questionnaire was considered the most efficient method of eliciting the required data from each school. It would allow the respondent to consult sources of reference rather than supply details immediately as in the case of an interview and, since only factual data was being sought and no attempt was being made to explore opinions, no provision was necessary for following up answers. Personal delivery of the questionnaires to the schools would also enable the researcher to make himself known to the organisations in advance of the greater demands that would be made of some of them. A major source of concern, however, was that response rates for questionnaires are notoriously low. This was alarming given the fact that data from *all* the schools was required in order to construct a complete picture of how, in Whitley Bay, schools at lower phases feed into those at higher levels.

4.2.2 Matching of pupils

Samples were drawn only from those pupils who had at no stage in their education attended schools outside the Whitley Bay Pyramid. The benefits to matching, however, have to be weighed against the disadvantage that youngsters educated in Whitley Bay schools only in their later years are unrepresented. It must also be acknowledged that even if a pupil sampled in a high school had attended a first school some of whose pupils

were also involved in the study, the extent to which the youngsters in the two different institutions shared a common educational background in terms of their first school experience is debatable, since working practices change over time, and the first school attended by the older pupil may now be quite different from the organisation he or she attended. Nevertheless, within such a limited period, some essential continuity will have been maintained.

4.3 Low level, “intraschool” sampling strategies

In terms of the selection of pupils within the schools, the following arrangements were made.

- a) Within all the schools ultimately agreeing to participate in the study, informants were drawn from each year group. This meant that youngsters from Reception- to Sixth Form-age were represented, thereby providing the sample with the balance considered necessary for a developmental perspective. The approach also allowed the beginning or end of a detected pattern to be traced to a particular year in the youngsters' lives, rather than a more general period. Nevertheless, the advantages of this “thin spread” coverage had to be weighed against the benefits of the more in-depth attention that could be afforded if only pupils of certain ages were sampled.
- b) Where the year group consisted of more than one form and these were of mixed ability, pupils were selected from a single form chosen at random. The involvement of only one form in each year group was designed to limit administrative complications for both the researcher and the schools, and also to ease the tensions of young children taking part in the focus groups by ensuring the presence of at least one classmate.
- c) Within the chosen forms and from the pupils who had spent all their time in education at Whitley Bay schools, informants were nominated randomly. Several factors led to the decision to employ a random method. Firstly, as Preece (1994: 102) notes, it helps to ensure that any “unknown influences” are distributed evenly among the sample groups. Secondly, it was highly appropriate given the nature of the investigation. The project might be considered a “collective case study” of the type described by Stake (1994: 237), in that multiple voices, exhibiting characteristics of similarity, dissimilarity, redundancy and variety, were sought in order to gain greater knowledge of a wider group, in this case youngsters more generally in the forms supplying the samples. This variety of case study is also recognised by Hamel, Dufour and Fortin (1993: 37), who dub it “macroscopic”, and emphasise the importance of appropriate selection tactics if the investigator is to be confident that informants are typical of members of a broader, “selected society”. According to Bouma and Atkinson (1995: 140), “A random sampling procedure provides the greatest assurance that those selected are a representative sample of the larger group.” The main disadvantage of random method stemmed from the fact that, since the researcher had no control over the choice of youngsters, it was possible that quiet or inarticulate individuals might be selected.

Whilst it is fairly uncommon for random methods to be applied within qualitative work, Gorman and Clayton (1997: 127) argue that they must not be discounted on principle and even outline a strategy for their use. Hannabuss (1995: 6), too, describes how samples may be identified with attention to statistical representativeness, yet the data may be analysed thematically, with “an emphasis on the private constructions participants place on meanings”. Within research into young people's information-seeking, random techniques have been employed successfully by Heather (1981: 24), Wray and Lewis (1992: 20) and Hirsh (1999: 1268-69) within their largely qualitative projects. The stance taken by this investigator is that

he should adopt methods from whichever paradigm is most appropriate to the research question and its implications.

Despite variations in the numbers of forms within each year group, both in a school and across different schools, and inequalities in the numbers of pupils in the forms themselves, fixed numbers of youngsters were used to form the samples for the focus groups and individual interviews. A system of stratified sampling sensitive to pupil numbers in the schools, their year groups or their forms would reflect extraneous factors pertaining to the individual organisations, whereas the educational structure was, in fact, merely being used to gain access to samples inclusive of pupils of different ages, abilities and backgrounds, and to help explain the reasons for their information-related attitudes and behaviour.

Since, in Whitley Bay, there are more first schools than middle or high, if equal numbers of young people were interviewed one-to-one in each of the selected forms, there were likely to be more younger pupils sampled than older. To compensate at least to some degree for discrepancies in the numbers of schools of the three different types taking part and thereby ensure a more even representation of younger and older pupils, it was decided that fewer youngsters from each first school form should be sampled and more from the forms of schools at higher phases.

4.4 Other forms of sampling considered

Patton (1990: 169-81) discusses a series of sampling strategies that may be used in qualitative research for the selection of "information-rich cases". Lincoln and Guba (1985: 201) believe that, if one seeks to collect as much data as possible, Patton's maximum variation sampling approach may be favoured. This strategy was rejected, however, primarily since the aim of this study is somewhat different, with the investigator wishing to gather data which was typical of the youngsters in each form so that this might be compared with that collected from other pupils of different ages and from different schools. Furthermore, maximum variation sampling might require the researcher to base his selections on advice from staff within the schools because he, himself, would be insufficiently familiar with the pupils. Although such consultation has taken place in past studies of young people's information-seeking (McGregor, 1993: 42-43, Poston-Anderson and Edwards, 1993: 26, Wallace and Kupperman, 1997: 9, Schacter, Chung and Dorr, 1998: 843), it was considered dangerous within this project as the biases of another party could form an input into the sampling process. A vital element of naturalistic reporting is the investigator's acknowledgement of his or her own prejudices. Yet, since it is impossible to identify those of the school staff who would be involved, these would form an unknown quantity, which could undermine the research's trustworthiness.

4.5 Sampling for focus groups

4.5.1 Group composition

The structuring of the focus groups was subject to the logistical constraints associated with Whitley Bay's education system. In order to reduce administrative complications, it was determined that each group should consist solely of pupils attending the particular school in which the session was to occur.

The decisions relating to the ages of the pupils to be brought together were highly problematic. In past research, various divisions have been applied to youngsters on the basis of their age. Some of these were contemplated when considering the composition of the groups. The divisions of the national census (i.e. 0-4, 5-

9 and 10-16) - employed in the CIPFA “Children’s Plus” investigation into the use of libraries by young people (CIPFA, 1997: 8/4) - were rejected as too broad, whilst many more specific age groupings were found to be impracticable. Those explored included the four stages of childhood defined by Kuhlthau (1988c: 52), the divisions advocated by Lazarus and Lipper (1994: 16) for developers of electronic media, the keystages of the National Curriculum (Department for Education, 1995c: v), the breakdown initially considered for use in the British Library Research and Innovation Centre’s project for developing tools to enable library authorities to collect data in relation to young people (Gordon and Griffiths, 1997: 372) and the five groups employed in the library survey, “A Place For Children” (Denham, 2000: 35). In each case, however, the divisions do not coincide with the breaks between first, middle and high schools.

The approach that was ultimately adopted was to base the focus groups on upper and lower halves of each school, thus bringing together pupils from usually two and never more than three years within one group (see Figure I). These “subphases” are broadly in line with what Krueger (1994: 214) considers to be the accepted wisdom when planning youth focus groups namely that youngsters from no more than two year bands are generally incorporated in one group. Cognisance was also taken of the fact that the Department of National Heritage (1995: 2-3) has found that needs change rapidly “over relatively short periods of time” in a youngster’s life. The National Curriculum keystone divisions within each school were adhered to as far as possible when defining the school halves, again so as to provide commonality among participants, since those working within the same keystone are subject to the teaching of similar areas of content.

FIGURE I: COMPOSITIONS OF FOCUS GROUPS

| School subphase | Year group | Age range | Keystage | Sample size |
|---------------------|---------------|-----------|----------|-------------|
| Lower first school | Reception | 4-5 | 1 | 2 |
| | Year One | 5-6 | 1 | 2 |
| | Year Two | 6-7 | 1 | 2 |
| Upper first school | Year Three | 7-8 | 2 | 3 |
| | Year Four | 8-9 | 2 | 3 |
| Lower middle school | Year Five | 9-10 | 2 | 3 |
| | Year Six | 10-11 | 2 | 3 |
| Upper middle school | Year Seven | 11-12 | 3 | 3 |
| | Year Eight | 12-13 | 3 | 3 |
| Lower high school | Year Nine | 13-14 | 3 | 2 |
| | Year Ten | 14-15 | 4 | 2 |
| | Year Eleven | 15-16 | 4 | 2 |
| Upper high school | Year Twelve | 16-17 | | 3 |
| | Year Thirteen | 17-18 | | 3 |

4.5.2 Group size

Although opinion on the ideal size of a focus group varies, Morgan (1988: 43), Patton (1990: 335), Krueger (1994: 78), Maykut and Morehouse (1994: 104, 106) and Gorman and Clayton (1997: 143) all suggest that at least six individuals should be involved. The decision was taken to assemble groups of six, as each year group could contribute either two or three members. The fact that each pupil would be in the company of a classmate might reduce anxiety in a young child, in particular, when faced with older colleagues whom he or she might not know. Thus, with six pupils in a group, some degree of peer support could be offered, whilst the size would be sufficiently small to provide ample opportunity for participation by each person. Nevertheless, the inclusion of two or more pupils from the same form meant that cliques or unsuitable combinations might emerge, especially as selection was to be randomly determined and there was no provision for staff intervention.

4.6 Sampling for individual interviews

Pupils to be interviewed one-to-one were selected randomly from those members of the chosen form who had attended Whitley Bay schools throughout their lives and who had not taken part in the focus groups. The use of different informants in the focus groups and individual interviews promoted triangulation of data sources, prevented repetition of data from the same individuals and increased the number of youngsters taking part in the data gathering phase, although the lack of any ongoing involvement by individuals did not allow a relationship of trust and familiarity between the researcher and the informants to be developed over an extended period. Lincoln and Guba (1985: 301-04) consider “prolonged engagement” between the respective parties to be a key factor in the collection of accurate data from human sources.

The numbers of pupils to be interviewed individually were not finalised until after the questionnaires had been returned and the numbers of schools agreeing to take part in the project had been established. It was decided that such decisions should be based principally on what was considered manageable given the time available for the completion of the project.

4.7 Microcosmic sampling frames

The use of the education system to provide a sampling frame allowed the application of a structured hierarchy of subservient subframes. These ranged in level from the macrocosmic to the microcosmic. The macrocosmic sampling frame might be considered to be the list of Whitley Bay schools provided by the Head of School Services. As pupils themselves formed the final sampling units, the form lists produced within the case study schools citing the name of each youngster in each form might be considered the microcosmic sampling frames. Krueger (1994: 82) believes that membership lists of this kind present a “fast and economical” method for identifying potential participants. Nevertheless, because the lists cited every member of a particular form and only those who had attended Whitley Bay schools throughout their lives were eligible for sampling, the researcher had to “weed out” at an early stage pupils who lacked the required characteristics.

5 STRATEGIES FOR DISCLOSURE IN DATA COLLECTION DIALOGUES

5.1 Overview of the data collection instrument

The decision was taken to employ a semi-structured approach involving an interview schedule (reproduced in Appendix Six). Nachimias and Nachimias (1976: 102) argue that such an instrument helps to ensure that

variations in responses are due to actual differences between the interviewees and, according to Morgan (1988: 66), it facilitates comparison of data from different sessions. To promote such data comparability as far as possible, a single interview schedule was constructed for use in both the focus groups and individual interviews, and with youngsters of all ages. It was considered that, after a carefully-worded question to elicit data on the informant's information needs, the schedule should, for the most part, list themes to be addressed rather than specific questions since, as Tammivaara and Enright (1986: 223) note, if the interviewer is to understand the world of the informant, he or she must cede a degree of control over the interaction. Nevertheless, where it was believed important that a common form of expression be used in each session, the actual words employed by the researcher were specified. Generally, this could be done only when it was known in advance that particular topics were to be introduced into the conversation by the investigator. As van Manen (1990: 67) notes, in any study of "lived experience" it is impossible to provide a detailed series of "ready-made questions" before the data collection sessions.

5.2 Development of the data collection instrument from theoretical bases

The following frameworks were adopted for the investigation of information needs and information-seeking:

a) a structured *content framework* to ensure the collection of data appropriate to the focus questions. This "research map", based on that devised by Layder (1993: 8-9), is shown in Figure J. His research elements are listed in the left-hand column, whilst in the adjoining column the terms are reworked into interrogatives addressing more explicitly the data required. Although data relating to "self" was obtained prior to the dialogues, for the most part the rightmost column indicates the specific issues to be covered in the actual conversations, based on the focus questions already formulated. Once the treatment framework had been determined, the manner in which these would be introduced into these dialogues was recorded in the interview schedule. This led to the *operational questions* that were put to participants. In attempting to operationalise a conceptual theory, Kari (1998) has taken a similar approach. Reinterpreting the ideas inherent in Dervin's sense-making model, she, too, has converted each into a question;

**FIGURE J: MODIFIED VERSION OF LAYDER'S RESEARCH MAP
USED FOR DATA COLLECTION**

| Layder's element | Reworked interrogative | Issues for consideration |
|-------------------|------------------------|---|
| SELF | Who? | Details about the youngster - gender, race, year group and school <i>Summaries of some of this data appear in Chapter Thirteen</i> |
| CONTEXT | Why? | The circumstances giving rise to the informant's information need |
| SETTING | Where? | The environment in which the youngster's information-seeking activity took place |
| | What? | The channel or source utilised |
| SITUATED ACTIVITY | How? | What was done, including the approach employed Problems encountered The degree of success enjoyed by the inquirer |

b) a more general *treatment framework* to guide the researcher on how data relating to the areas specified in the content framework should be collected. A storytelling approach was selected, with each informant given considerable freedom to describe an information need, its context in his or her life and the manner in which it had been acted upon. This was considered the best strategy for collecting rich data and developing a sympathetic understanding of the youngsters' experiences. Noddings and Witherell (1991: 280) write, "stories are powerful research tools. They provide us with a picture of real people in real situations, struggling with real problems."

Drawing attention to the compatibility between the strategy of storytelling and the data collection method of interview, van Manen (1990: 66) notes the latter's suitability "as a means for exploring and gathering experiential narrative material that may serve as a resource for developing a richer and deeper understanding of a human phenomenon". According to Florio-Ruane (1991: 240), the very act of conversation that takes place during an interview naturally leads to data that is presented by the informant in story form. The storytelling technique itself is also of general applicability, and it was its particular suitability to young children that led to its adoption. In the words of Bruner (1990: 80):

"... while we have an 'innate' and primitive predisposition to narrative organization that allows us quickly and easily to comprehend and use it, the culture soon equips us with new powers of narration through its toolkit and through the traditions of telling and interpreting in which we soon come to participate."

In a research context, Mauthner (1997: 19-20) argues that such an anecdotal strategy is often successful in minimising the effects of inequalities resulting from differences in the status and age of the researcher and the participants. It certainly offers informants greater ownership of the exchanges and may appear less intimidating to a youngster than a battery of questions. Inspired by the work of Dervin (1983: 25-26) in relation to "neutral questioning", the interventions of the researcher directed the conversations towards the coverage of areas thought to be relevant to exploration of the young people's information universes. The questions articulated were predominantly personal and open. Although Beer (1989: 177) believes that data relating to a youngster's own experience is more likely to be reliable than when he or she is asked to deal with more abstract issues, Schank (1990: 36) is cautious with regard to the accuracy of data elicited by the storytelling approach, suggesting that the teller may be tempted to embellish the truth in order to render an account more interesting. Thus probes were employed to investigate the informants' data in detail, and a style of iterative questioning was adopted in which the researcher returned, during the course of the dialogues, to issues previously raised in order to ensure that data contributed on different occasions within the exchanges was consistent. This technique was inspired by procedures advocated by Wood (1969: 266) in relation to questionnaires. Where possible, data offered by one participant was also tested against that provided by others.

5.3 Treatment of individual content areas

5.3.1 Information needs

5.3.1.1 Topic introduction

Information needs formed the first content area addressed and followed a short introduction by the researcher outlining the purpose of the session. Since Tammivaara and Enright (1986: 232) suggest that anxieties emerge for youngsters from the "terrifying 'vacuum'-like quality of the strangers' first meeting", it was considered

important to make efforts to put the youngest pupils at ease as soon as possible by providing artefacts that would initiate discussion. All first school informants were presented with a set of ten cards, each of which depicted a child, from whom thought bubbles and question marks emanated. The youngsters were asked to select a favourite illustration and, to help "break the ice", were invited to provide the child depicted with a name. It was explained that each person was shown "wondering" as "there's something they need to know about". The research subjects were requested to think of a recent occasion when they had been in a similar position.

5.3.1.2 Life-centred approach

After the picture-based prelude, a procedure based on the life-centred techniques employed by Dervin et al (1976: 26-27) was utilised. Essentially, this involved exploration of problems, concerns and "finding out situations" recently arising in informants' lives, identification of the nature of the information required and, ultimately, investigation of the information-seeking action taken and its success. The basis for this strategy is Vakkari's (1997: 457) principle that information is used routinely by people "in completing a task or action", or, at least, in addressing a situation arising in their lives.

In their study of the information needs of Seattle's residents, Dervin's team initially invited participants to reflect on situations "where you needed help... where you didn't understand something... where you needed to decide what to do... or, where you were worried about something". Dervin's informants then described in detail a particular instance within one of these categories. Similar strategies have been used subsequently by Chen and Hernon (1982: 25) and Poston-Anderson and Edwards (1993: 26), amongst other investigators. Since Dervin's approach was not designed for young people, however, the question formulated in this project was different. In particular, in view of the assertion of many researchers that youngsters' information needs are predominantly dictated by the formal education system, it was felt that the question should include a direct reference to academic situations. As it might be expected that young people also want information on subjects of interest to them, this aspect was also addressed explicitly. Thus, the instructions to the informant were reformulated as follows:

- (1) "In your picture, the child is wondering because there's something they need to know about.
Has that ever happened to you?
- (3) Think of a time recently when you needed help, when you needed to decide what to do, when you were worried about something or when you needed to find something out or learn something,
- (5) either for school or your own interest.
It might've been at home, at school or anywhere else.
- (7) Could you tell me about what you remember of that time?"

The venue statement (in line six) was inspired by a similar tactic employed by Chen and Hernon (1982: 25). So that any youngster with sufficiently advanced reading skills was not required to remember each type of situation, the list of circumstances (lines three to five) was reiterated in an arrow diagram on a flipchart sheet. As in many studies of information needs, emphasis was given to recent instances, partly to minimise errors resulting from informants' lapses of memory but also to ensure that the needs, and the methods employed by the youngsters for dealing with them, were not so distant that they were now atypical of the informant. Concentration on recent experiences also meant that the instances described took place against a similar prevailing background in terms of technology, education, etc. Since young children's sense of time is

notoriously unreliable, however, it was felt inappropriate to stipulate a certain time period. In keeping with the strategies of Dervin et al (1976: 26) and Chen and Hernon (1982: 25), the word, “information”, was used by the researcher at no stage in this part of the discussion. This was partly due to his belief that the term would have particular connotations for the informants, some of which might be detrimental to the study. In addition, the contexts in which the investigator employed the word might affect the youngsters’ responses when the word was discussed specifically later in the dialogues. Like Dervin et al (1976: 26), Poston-Anderson and Edwards (1993: 26) and Hayter (1998: 32), the researcher initially focused attention on one particular instance - a critical incident. Such an approach is advocated by van Manen (1990: 67) in his guidance on how an interview-based storytelling strategy may be employed. According to Davis (1971: 8-9), the method is especially suited to reconstructing “previous information-seeking experiences in order to define the genesis of the problem requiring specific information”. When one situation had been explored fully, again in accordance with the van Manen model, other instances of information need recently experienced by the youngsters were investigated.

5.3.1.3 Factors shaping the strategy used

The need for rich data, a knowledge of the methods used in past information needs investigations and recommendations on how interviews with youngsters should be administered all helped to shape the approach employed in the data collection dialogues. Cognisance was also taken of young people’s information needs as revealed by existing studies, and the overall question formed was intended to be sufficiently general to elicit data on all likely types of information needs. With this open approach, however, the danger emerges that the needs described are so varied that the boundaries of the project are hard to establish. As Denscombe (1998: 38) observes, in a situation of this kind the intended focus of the study “bleeds into other social phenomena and ceases to have any distinct identity”. Nevertheless, if the researcher were to explore, from their perspectives, the wide-ranging information universes in which young people operate, he had to be prepared to allow such diversity in their ideas.

5.3.1.4 Other possible techniques

The life-centred strategy was preferred to the information-oriented approach mainly because it was thought that the latter might limit the informants’ responses. Dervin (1976a: 28) writes that people may be aware of particular needs that they have but may not view them as “information” problems, when they can, in fact, be alleviated by an information input. Furthermore, if the data collected in the study were to be comparable, the informants would have to share a common understanding of the word, “information”. It was anticipated, too, that the term might be entirely unfamiliar to the youngest pupils. Fieldwork proved that this was indeed the case. The life-centred approach was also thought to be better equipped to uncover needs that individuals had felt, although not acted upon. These unexpressed needs were to form a key area for coverage in investigation of youngsters’ information requirements.

Eskola (1998) describes how information need may evolve “from a vague awareness of something missing”, and Taylor (1968: 182-83) offers a similar theory. The latter also indicates that the “compromised need” presented by an individual in an information encounter is influenced by what he or she believes can be provided by the source that is consulted. The technique developed for the study was aimed at collecting data on

youngsters' needs at the earliest stage possible in the continua elucidated by Eskola and Taylor, before the individual's attitude to the need came to be influenced by his or her expectations of what the information source might be able to offer. The danger emerges that an information-oriented technique may reveal only these compromised needs.

One further approach was considered but ultimately rejected. Walter (1994: 115), drawing attention to the problems experienced by youngsters in articulating their information needs, postulates that they may be more successful if potential needs are suggested to them. Dervin et al (1976: 26) used this principle in the Seattle project. In the thesis study, it was deemed unsuitable, however, since it would restrict exploration to areas articulated by the researcher, and any method based on youngsters' reactions to adult suggestions was incompatible with the aim of examining the information universes of young people from *their* perspectives. Although such citing of topics may be considered analogous to the listing of "need situations" that was actually employed, the latter was designed simply to clarify and elaborate on the question rather than to direct thought on its subject matter.

5.3.2 Information-seeking action

Having outlined a "need situation", some informants at once described, without any direction, how they attempted to resolve it. Others required only a small prompt. In each case, the information-seeking activity was seen in the context of the situation which had stimulated it. During the youngster's recall of an information encounter, the investigator's role was mainly limited to that defined by Alterio (1999) - asking clarifying questions and facilitating the exploration of feelings - whilst ensuring that the areas stated in the interview schedule were addressed by the informant.

Discussion of the information-seeking action taken by the inquirer, and his or her assessment of the value of the material obtained, were also important in gaining additional insight into the need. In this respect, the line of questioning employed included an element of the "help chain" strategy again devised by Dervin (1992a: 72) since, by asking informants the extent to which they were satisfied with the information, the nature of the need was brought into a sharper focus. Wilson (1981: 7), too, has noted how the investigation of an individual's search processes may provide a greater understanding of the need.

5.3.3 Perceptions of the term, "information"

5.3.3.1 "Overt" methods

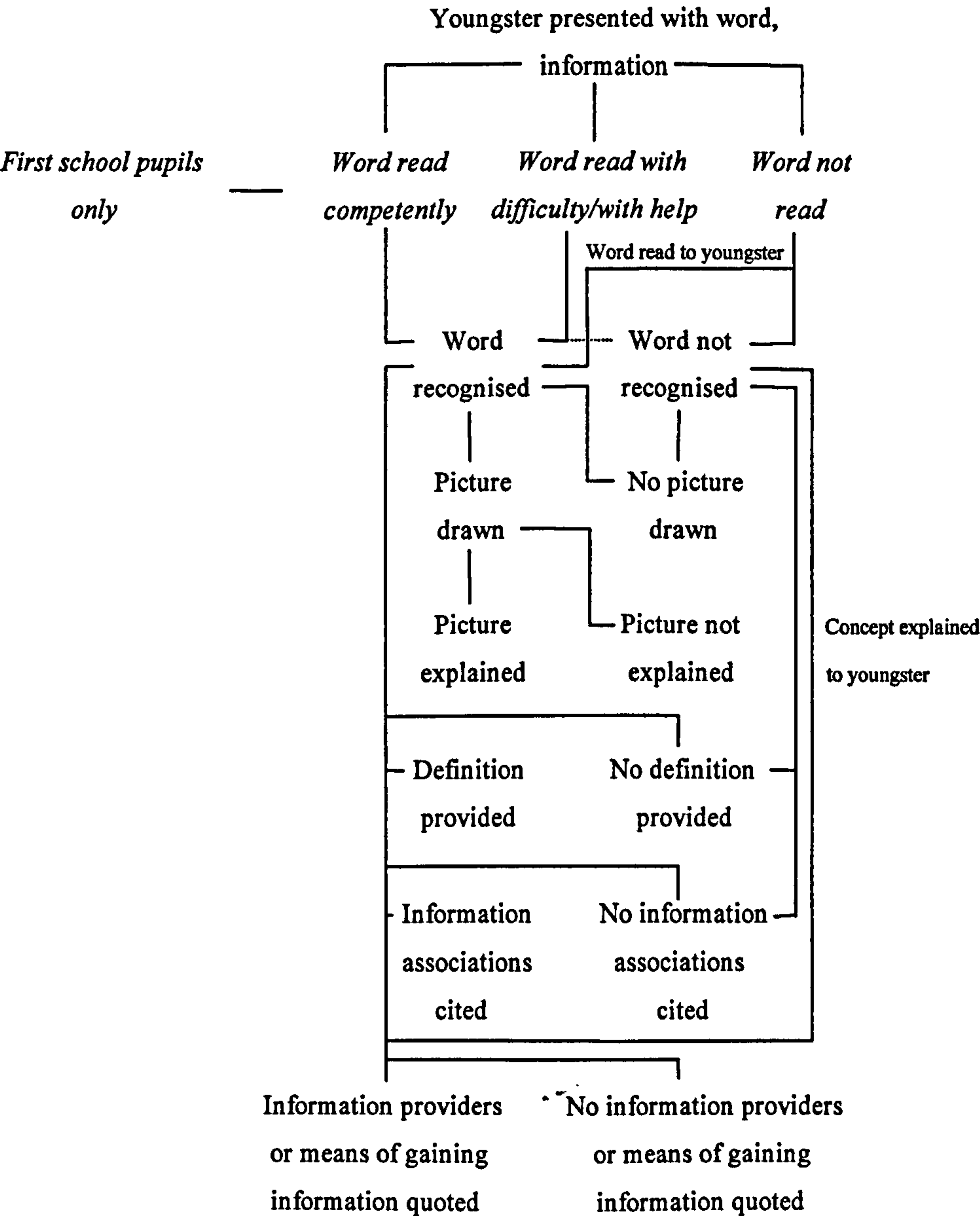
The manner in which this area was directly addressed in the dialogues with youngsters is shown in Figure K.

5.3.3.1.1 Use of drawing techniques to investigate youngsters' perceptions

After investigation of their information-seeking actions, the participants were introduced to the term, "information", a word which had not hitherto been used by the researcher. First schoolers were shown it on a flashcard and asked if they recognised it. Where informants were unable to read the word, it was read to them and they confirmed whether or not they were familiar with it. Youngsters demonstrated their immediate recognition of the word in one of two ways - either they made spontaneous comments on seeing the term or they offered, on demand, sentences or phrases that included the word, thereby proving their understanding. Where the word was new to participants, the concept was explained to them. Informants of all ages who were

familiar with the term, “information”, were then asked to “draw a picture to show what you think we mean by the word”. A well established technique, the approach is based on the principle propounded by Goodnow (1977: 10) that drawings “are ‘natural’ rather than imitative... they spring from within” and it has been employed by academics investigating youngsters’ perceptions of concepts including machines (de Bono, 1971: 123) and science/scientists (Chambers, 1983: 257, Newton and Newton, 1992: 332-33, 1998: 1140). The drawing activity made an important contribution to triangulation within the Whitley Bay study because it added a further method of data collection and, as de Bono (1972: 12) notes, it enables the researcher to gain an insight into the ideas of a youngster who is ill at ease in using words or possesses only a limited vocabulary. This renders it particularly appropriate for young children. The drawbacks, however, are documented by Newton and Newton (1992: 340, 345), who reason that the content of a participant’s representations may depend partly on what he or she finds easy to draw and that the technique is poorly suited to allowing the portrayal of mental processes.

FIGURE K: AREAS OF COVERAGE IN DIALOGUES INVESTIGATING YOUNGSTERS’ UNDERSTANDINGS OF TERM, “INFORMATION”



5.3.3.1.2 Movement from drawing to discussion

On completion of the pictures, pupils were asked to explain their work. This discussion eased the youngsters into consideration of the least concrete area on the interview schedule. As Tammivaara and Enright (1986: 232) comment, “Young children generally find *doing* something *with* something and talking *about* that something to be easier, more comfortable and more interesting than only talking about something that isn’t physically present.” As well as allowing any ambiguities in the drawings to be clarified, their scrutiny led to the opportunity to address the youngsters’ understanding of the term, “information”, more generally. Now using a verbal approach, they considered what was meant by “information”, its associations for them and sources from which information might be obtained. The second element was loosely based on word association tests that Schultz and Schultz (2000: 150-51) attribute to the British scholar, Francis Galton, although, in this study, the exchanges were not of a rapid fire nature and greater emphasis was given to the youngsters’ explanations of their individual associations. Informants who had not recognised the term but who understood the concept after explanation also considered how information might be obtained. Once more, an anecdotal approach was encouraged. In some instances investigation of the information sources and providers known to the youngsters also presented the researcher with an opportunity to probe the degree to which IT was accessible to the pupils at home. This, in turn, increased the researcher’s understanding of the options available to the informant when addressing the information needs that had been discussed earlier.

5.3.3.2 “Covert” methods

“Covert” data elicitation techniques were employed in addition to the “direct methods” described above. In the first part of the dialogues, youngsters had described life situations and how they had acted upon them. It was decided after preparation of the transcripts that this text should be read not only to determine the informants’ answers to the researcher’s questions but also to consider the youngsters’ own uses of the term, “information”, and the contexts in which they had employed it. This added a more naturalistic dimension to the inquiry. The strategy was inspired by the work of Webb et al (1966: 50), who advocate “unobtrusive measures” involving analysis of material “generated without the producer’s knowledge of its use by the investigators”. Although youngsters answering the researcher’s questions obviously knew that their responses were to be analysed, they were unaware that their replies would be examined in this context and use of the data was here unobtrusive.

5.4 Tone of the investigator

The researcher took care to adopt a non-judgmental posture. In common with the style advocated by Mauthner (1997: 18), he introduced himself at the beginning of each session as “someone wanting to find out about young people and their lives”. From this position, he explained that he simply wanted to know about the informants’ own experiences and opinions, and valued the ideas that they could share with him. The presence of a tape recorder was used to indicate the importance he attached to the pupils’ data. The investigator also asserted that there were no “right answers” to his questions. This reassurance was deemed essential in view of the work of Cole and Gardner (1979: 191) and Wray and Lewis (1992: 22), which has shown that young people’s declared information-seeking actions often do not match their actual behaviour. By indicating that the activity was not a test, the researcher hoped to reduce any discrepancies resulting from deliberate lies. Since Garbarino and Stott (1989: 11) write that young people usually communicate more openly when they are

“feeling good about themselves”, an encouraging tone was adopted, although care was taken not to show approval for particular responses.

The compilation of notes during the conversations was restricted to a minimum. As well as being distracting for the informant, extensive notemaking would have reduced the extent to which the researcher could encourage the youngsters through body language such as head nods and eye contact. Notemaking would also have diminished his ability to monitor the informants’ reactions - a task deemed vital if all youngsters were to gain a continuing understanding of the subject of the conversation. Furthermore, the aura of preoccupation arising from notemaking could have undermined the credibility of the researcher’s claim that he was genuinely interested to hear the informants’ contributions.

5.4.1 Contrast between the researcher’s strategies and those of the teacher

The researcher attempted to distance his role from that of the teacher. He introduced himself by his first name. Youngsters were assured that the session was unrelated to their school work and that any issues raised would not be reported to their teachers. Frequently the investigator “played dumb” in order to elicit further elucidation. Such a ploy is advocated by Tammivaara and Enright (1986: 231). As part of this strategy, first schoolers, when asked to describe what the term, “information”, meant to them, were told to imagine that the researcher was a “man from Mars” who knew nothing of the word. The children were invited to consider what they could say to help him. Furthermore, older informants were sometimes asked if they could suggest reasons for particular patterns observed by the researcher. Here the investigator assumed the guise of Lofland’s (1976: 1) “radically naive” person.

The fact that the loose, storytelling style allowed the participants to introduce their own topics moved the sessions away from situations where the adult simply asked a series of questions. According to Tammivaara and Enright (1986: 230), when exchanges follow the latter pattern, youngsters tend to equate the activity with a *lesson*. For this reason, no reference was made to the fact that certain areas would be addressed and the points shown in the interview schedule were introduced as naturally as possible.

6 MEMBER CHECKS

An informal member checking system was embedded within the data collection sessions. This involved presenting the informants, during the course of the dialogues, with regular summaries of the data which the investigator believed had been contributed and inferences he had made. Participants were afforded an opportunity to clarify or amend their own comments and correct the researcher’s interpretations.

7 SUBSIDIARY DATA COLLECTION - USE OF DOCUMENTS

The dialogues with the youngsters formed the principal stage of data collection. A subsidiary element involved scrutiny of documents, most of which were associated with the schools taking part in the fieldwork. The materials consulted were of five types:

- a) documents generated within a school as a result of internal processes. They include school development plans and subject-specific schemes of work;
- b) documents produced by a school for an external readership, such as prospectuses;

- c) documents dealing with a school but produced by outside parties, for example OFSTED inspection reports and more general, council-produced materials like guides to local schools;
- d) official publications, such as the National Curriculum (Department for Education, 1995c) and the National Literacy Strategy (Department for Education and Employment, 1998b), which influence the content of the material delivered to pupils;
- e) literature specifically devoted to Whitley Bay and its environs.

The examination of such documents served three main purposes within the study:

- a) to provide information that might help to explain particular patterns in the pupils' information-seeking processes. Here, school policy statements and National Curriculum documents (Department for Education, 1995c) proved illuminating;
- b) to enable verification of youngsters' data, especially within the area of information needs. All school-required needs reported in Chapter Sixteen have been validated against materials such as schemes of work and curriculum programmes;
- c) to allow the production of background data so that any reader of the thesis is able to determine how far the study's findings and conclusions may be transferred to other situations. Much of this descriptive material was obtained from school prospectuses and OFSTED reports, although data contributed by school staff and the researcher's own factual observations were also utilised.

7.1 Problem areas

Some caution had to be exercised when examining the documents. As Bogdan and Biklen (1998: 137) note, those produced for external consumption may present "an unrealistically glowing picture of how the organization functions". This is particularly true of school prospectuses. Greater credence was given to the work of independent organisations, such as OFSTED. A further, general concern was that even if no attempt were made to mislead, data within school documents might be rendered inaccurate over time with changes to working practices.

8 PILOTING

Since an analysis of past work reveals that few studies devoted to youngsters' information behaviour have sampled the very young, it was impossible to adopt procedures with a proven track record in projects of this kind. Thus the focus group and individual interview stages were piloted in a Whitley Bay first school before the main data collection period. The primary aim was to enable the researcher to test the appropriateness and effectiveness of his techniques. Piloting also allowed the collection of usable data relating to an actual case study school during the relatively early days of the project, thereby reducing the burden of fieldwork subsequently.

9 DATA ANALYSIS

9.1 Preparation of transcripts

9.1.1 In relation to dialogues with youngsters

Commentators such as Patton (1990: 372) and Creswell (1994: 153) assert that there is no single correct method for analysing qualitative data but clearly the course of action chosen must reflect the purposes of the

study. A form of what Krueger (1994: 143, 157) terms “transcript-based analysis” was deemed most appropriate here, and the specific stages were largely derived from his “process steps”. Nevertheless, the recommendations of Glaser and Strauss (1967), Lincoln and Guba (1985), Patton (1990), Tesch (1990), Maykut and Morehouse (1994) and Creswell (1994) also significantly shaped the strategies employed. After creation of back-up audio tapes of the data collection dialogues, “Microsoft Word” was used to prepare verbatim transcripts. Despite the fact that the production of word-for-word transcripts demands much time, this investment was considered essential if the perceptions of informants were to be captured accurately. Sacks (1984: 26) notes how production of the transcripts also strengthens the “audit trail”, as scrutineers can see the actual data. Furthermore, as Silverman (2001: 164) explains, the process of repeatedly listening to the informants’ words whilst transcribing heightens the researcher’s awareness of the speakers’ perceptions of the matters discussed. Each transcript consisted of three sections:

- a) background information specifying the time and date of the dialogue, the school involved, the venue within the building and details of the youngster or youngsters taking part, i.e. the name, gender, race and year group of each individual;
- b) the main text providing the actual words used by the informants and embellished with comments derived from field notes;
- c) a neat copy of any other factual observations made by the researcher immediately after the session, including a short description of the room used and a diagram showing the seating.

A similar system of entering interview dialogue and field notes into word processing software has been employed by Pitts (1994: 76). Each transcript was identified uniquely via a coded notation. The pictures drawn by the informants, and photocopies of any other materials shown by the youngsters during the dialogues, such as assignment briefs or their actual work, were labelled with the same identifiers as those denoting the sessions in question and were inserted into the appropriate transcripts.

9.1.2 In relation to dialogues with adults

Since they were not tape recorded, dialogues with school staff and North Tyneside’s Senior Inspector of Schools could not be transcribed in the same manner as those with youngsters. Nevertheless, they consisted of the same three sections:

- a) background information indicating the time and date of the dialogue, the establishment and room in which the session took place and the post held by the informant;
- b) the main text, summarising the content of the dialogue and based on notes taken at the time;
- c) a neat copy of any observations made by the investigator immediately after the exchange.

The only interview with adults which was tape recorded was that with two public librarians, who spoke to the researcher after the main period of data analysis.

9.2 Formative analysis

There is common agreement that qualitative data collection and analysis should run in parallel (Ely et al, 1991: 86, McGregor, 1993: 58, Pitts, 1994: 77, Creswell, 1994: 153, Merriam, 1998: 151, Silverman, 2000: 121-22). In this project, formative analysis took two forms:

- a) **post-meeting observations**, which commenced directly after a dialogue with the first member of school staff contributing data. This established a routine in which the researcher recorded his initial impressions after each interview;
- b) **post-transcription review**, which immediately followed the creation of the first transcript. The review embraced three tasks:
 - *the compilation of a collection of insightful quotations*. These were highlighted on printed copies of the transcripts, and colour coded to indicate their relevance to one of the three strands of the project;
 - *preliminary theme tracking*. Once several transcripts of dialogues with youngsters had been made, they were read in order to detect recurring patterns. This led to the identification of issues that demanded further investigation whilst the fieldwork was still taking place. Sometimes documents were collected to verify the informants' data or to help explain their behaviour. The researcher also tested his emerging theories on new participants and even invited them to help explain them;
 - *identification of links with previous work*. Where data within the transcripts reminded the analyst of past research findings, he made a note to this effect, thereby expediting comparison within the final thesis of the study's results and those of existing projects.

The post-meeting observations and post-transcription review formed two elements within the researcher's "reflexive commentary" as advocated by Lincoln and Guba (1985: 327), Maykut and Morehouse (1994: 68-69) and Pickard (1998). The final ingredient was an ongoing, critical appraisal of the study's methods and approaches. The conclusions informed the reflective review in Part VII.

9.3 Summative analysis

The key tasks within summative data analysis are listed, in sequence, below.

a) Definition of categories on "feels right/looks right" basis

Each transcript was reread in order to identify the inherent concepts. Categories were developed to summarise the content of the different parts of the text, which was segmented accordingly. Individual categories were indicated by keywords, which usually took the form of an abbreviated representation of the concept. The constant comparative method developed by Glaser and Strauss (1967: 105-13) was employed for category generation. This long-established technique has won favour among qualitative researchers across a variety of disciplines and its popularity has scarcely waned over time. Indeed, as recently as the late 1990s, Merriam (1998: 18) was still writing of its widespread use "in all kinds of qualitative studies". Its employment in library and information research devoted to youngsters has been frequent (Eastman and Agostino, 1986: 51, Lashbrook, 1986: 206, Pitts, 1994: 78, 87, Pickard, 1998, Todd, 1999: 13, Dobson, 2000: 32). Maykut and Morehouse (1994: 134) describe how the process initially involves the comparison of each unit of meaning within a transcript with previous units so that it may be categorised and coded with like units. If there are no such similar units, a new category is formed.

In accordance with Lincoln and Guba's (1985: 340, 342) advice, data was first categorised on the basis of a "feels right" or "looks right" criterion. This process was informed by the experience gained from the compilation of his post-meeting observations and in post-transcription review. Some categories emerged from the language actually used by the informants, whilst others were derived from the researcher's understanding

of what had been said. The codes representing the categories were inserted into the main text of each transcript in upper case letters and the sections involved indicated by markers. Subsequently, text associated with a certain category could be located quickly within a given transcript using the software's "find" facility. The youngsters' pictures were arranged in discrete groups coded on the basis of what was shown.

b) Shift to rule-based definition of categories

Whilst segmenting and coding the text of each transcript, the researcher compiled notes, the purpose of which was to distil the "essence" of each category. Glaser and Strauss (1967: 107) suggest that the writing of memos in this way taps "the initial freshness of the analyst's theoretical notions". This led to a refinement of the categories and an increasing grasp of their "properties". Ultimately, explicit rules of inclusion were constructed. The process of formulating the rules drew attention to the need to change some of the existing categories. Several had to be divided and new rules written, whilst a few categories were amalgamated.

c) Compilation of a data dictionary

From the earliest attempts to categorise transcript content, a data dictionary was maintained. Inspired by the "topic list" recommended by Creswell (1994: 155), it cited the codes and the categories they represented and, initially, included the memos describing these categories. Over time, however, these gave way to the more formal rules of inclusion. The data dictionary consisted of three sections, each of which was devoted to one of the three strands of the project. Concepts relating to each strand were, in turn, grouped together for easy reference. The dictionary fulfilled several purposes. In the early stages, it ensured that a certain concept was consistently represented in the codes. By providing a record of the notes pertaining to each category, it also facilitated comparison of them and informed the eventual definition of the rules. Finally, comparison of the rules provided a starting point for the later investigation of relationships between the concepts.

d) Construction of transcripts' database

After the pictures and transcript text had been coded, a database record for each informant was prepared using "Microsoft Access". Each record included fields devoted to the following areas:

- **the transcript identifier;**
- **biographical information**, stating each informant's name, gender, race, year group, previous school(s) and current school. This general area was the only part of the record in which the details entered in the fields did not come from data given in the conversations with the participants. Nevertheless, the names of their past schools were supplied by the youngsters themselves, here in advance of the main phase of data collection when they entered these particulars on catalogue cards;
- **information needs**, with the youngster's responses in this area represented as a list of coded concepts copied from the transcript already prepared;
- **information-seeking action**, again with scope for the entry of appropriate coded concepts;
- **perceptions of "information"**, an area which consisted of two fields, the first devoted to the informant's articulated ideas and the second to the terms used to describe the pictures.

The database played a key role in summative analysis. It served as an intermediary uniting the coded concepts listed in the data dictionary and the raw data in the transcripts, as text within the transcripts relating to a

desired specific concept could be traced through the use of the database. The fact that this could be searched via a range of fields also allowed the identification of patterns and investigation of their prevalence.

e) Creation of concept webs

Various techniques have been described by researchers for representing linkages between concepts within the data gathered. Tesch (1990: 143), for example, recommends drawing lines between topics, and one of the tactics advocated by Huberman and Miles (1994: 432) involves “clustering” by conceptual mapping. In this project, the construction of concept webs met a similar purpose. This task involved examination of the rules associated with each concept listed in the data dictionary and arrangement of the concepts in webs to indicate relationships between them. Such connections took the form of sequences of action, causes and effects or simply links between broad and narrower concepts. Web construction was aided by the fact that the keywords representing the concepts were themselves devised to show relationships between the ideas, somewhat in the manner of “Windows” directory trees. The creation of the concept webs may be viewed as the first attempt to construct a “whole” from the data that had been accumulated. Furthermore, as the webs were intended to form the start of the process of deriving order from this whole, they also provided the researcher with a guide for structuring the writing up of the study’s results. Where possible, in the concept webs negative cases were addressed and the point at which these diverged from the norm indicated.

f) Resolution of anomalies

The process of closely examining the data categories in order to construct the webs uncovered further deficiencies within the former and some changes to the categories, their rules and their codes were again necessary. Amendments were made to the transcripts, the data dictionary, the database and the concept webs. For each term within a web, the database was used to help locate the areas of text in the transcripts where the concepts were apparent. In order to maintain an “audit trail”, before a copy was printed each segment of text was labelled with the identifier for that particular transcript. Ultimately, in a process that Tesch (1990: 122) terms “re-contextualization”, all extracts relating to each particular concept were assembled on large sheets of paper and sequenced according to the age of the youngsters contributing the data so that any age-related development could be traced. Patterns pertaining to the individual schools also became apparent at this point since the decision had earlier been taken to colour code the paper of each transcript in accordance with the school attended by the informant(s). As more anomalies were revealed when the segments of text were seen together, it became apparent that further changes should be made to some categories. Such alterations again demanded amendments to the data dictionary, recoding of the keywords within the affected transcripts and database records and revision of the concept web.

g) Closure of category generation

When all the categories had been incorporated into concept webs and the researcher was satisfied that each category accurately reflected the segments of text associated with it, coding and amending ceased. The investigator returned to the transcripts and reread them in order to ensure that no inherent concept had been omitted. Any data that was felt to lie uneasily within a category was moved into one more appropriate or a new category was defined.

h) First-order synthesis: the production of typologies

Lofland (1976: 3) asserts that a major task for the researcher is to generate “disciplined abstractions” from “the abundance of qualitative episodes” recorded. Within this project, such “abstractions” may be considered to take the form of types within typologies. This work moves the project firmly into the “interpretive” form of case study described by Merriam (1998: 38).

Using the text assembled on the large sheets to examine the data so as to determine variations within a concept and the webs to investigate the manner in which particular ideas related to each other, typologies were developed dealing with youngsters’ understanding of the term, “information”, their information needs and their information-seeking actions. Each type represented, in relation to a particular issue, a summary of similar data provided, for the most part, by several informants but some types were derived from single cases. Definition based on one instance was considered critical to bolstering the trustworthiness of the study since, as Lincoln (1995: 283) asserts, “the extent to which alternative voices are heard is a criterion by which we can judge the openness, engagement, and problematic nature of any text.” Clarification of the types emerged after a form of “componential analysis” resembling that advocated by Bernard (1994: 390-92) and Miles and Huberman (1994: 133). Here charts were constructed in which the individual features of the types were analysed so that the categories could be defined as precisely as possible for the thesis’s readers. The typologies were predominantly of the “analyst-constructed” form noted by Patton (1990: 398), with their divisions devised by the researcher, although “indigenous typologies” formed by the informants were also defined where these had emerged. Examples and quotations were employed to reduce the distance between the data itself and the reader of the thesis. Some had been identified at as early a stage of data analysis as the post-transcription review. The combined importance of creating types within a typology and making appropriate reference to the words of the actual informants is stressed by Lofland (1976: 65), who writes,

“the abstractions [taking the form of the types] and qualitative data [taking the form of the quotations] coexist as one whole. Each depends on the other for enlightenment and meaning. Taken separately, the abstractions and data may have slight interest or merit. The abstractions are likely to be dull because the reader has an inadequate conception of the concrete, empirical reality to which they might refer. The qualitative data alone are dull because the reader has little notion of generic patterns involved, save those he might himself be imposing. But interpenetration through minute and continual alternation between abstraction and episodes makes the whole more than the parts.”

Rice-Lively (1997: 206) suggests that, in addition, quotations lend authority to an account. Certainly, the reporting of specific experiences can strengthen the “audit trail”, since real examples are being provided from which the typologies are derived. A further benefit in terms of providing rigour to the project proved to be the way in which the inclusion of particular data within the types enabled the researcher to assess, even as late as the writing up stage, the extent to which the examples were consistent with the types defined.

i) Use of matrices

Silverman (2001: 241) comments that many critics attack qualitative studies on the basis that the examples from the field quoted by their researchers are included simply because they support their own predispositions. To counter this charge, he advocates the use of techniques to allow readers “to survey the whole corpus of data ordinarily lost in intensive, qualitative research” and see for themselves patterns emerging from it. In the thesis, where a particular type of thought, behaviour or action is stated, the informants exhibiting it are frequently indicated, either within a chart or via a list following the statement of the type. In each case, the

youngster's pseudonymous name and transcript identifier are provided. Where larger, more macrocosmic themes are under scrutiny and more youngsters are involved, charts summarising the extent of the themes across different school phases have been prepared.

j) Negative case analysis

After completion of the typologies, the raw data was re-examined in order to identify any that was unaddressed in the typologies and which deviated from the defined types. Since a critical feature of qualitative inquiry is that even single instances are significant, on occasions the researcher's constructs were redeveloped in order to render them inclusive of these hitherto negative cases.

k) Comparison of results of summative analysis with ideas within "reflexive commentary"

The post-meeting observations and the post-transcription reviews were reinvestigated to determine whether any themes identified during formative data analysis had been omitted from the writing that had emerged from the summative examination. Where there was evidence that oversights had been made, the data was revisited in order to ascertain whether there was a definite pattern or whether the initial insights were not actually borne out. Only if the former situation pertained was the writing up extended to include the new ideas.

l) Reflection on completeness and relevance

Care had to be taken to ensure that findings were reported in terms of the nominated content areas and focus questions. Thus the typologies were examined with a view to determining how far they satisfied the criteria of *relevance* and *completeness* in answering the focus questions. Some areas of the ongoing report related only loosely to these questions. Nevertheless, where these were thought pertinent to the general areas of young people's information needs and information-seeking, they have been presented in the thesis. A comparable approach has been taken by Gross (1998: 144-54), who outlines her additional findings in a "supplementary analysis".

m) "Contextualisation" of study findings

After recording the results for the study, the researcher returned to existing literature. This allowed verification of findings, as data from official publications, such as the National Curriculum (Department for Education, 1995c) and the National Literacy Strategy (Department for Education and Employment, 1998b), and internal school documents could be used to assess the credibility of the typologies. Although this was never the case, it was intended that if evidence from these sources was seen to disprove a type within a typology then the type, itself, would be discarded. Available literature was also used to frame the study's findings since it helped in attempts to explain the reasons lying behind the youngsters' particular needs, thoughts and actions. The most appropriate materials for this task were, again, internal school documents and the official publications mentioned above. In addition, consultation of past research allowed the investigator to determine how far his results were consistent with previously-observed patterns. Some impetus for this had been provided in the post-transcription review, in which the researcher had referred to related findings from other studies.

This project makes no attempt to stand alone. Borgman (1986: 47) notes that understanding is gained "in hard-won pieces, rather than one grand experiment". In the literature review, the project assembled

existing “pieces” and, in reporting of results, the researcher aimed to indicate the placement within them of the particular findings pertaining to the study. Cooper (1984: 9) considers such an approach to be essential, arguing that the “value of any single study is derived as much from how it fits with and expands on previous work as from the study’s intrinsic properties”.

n) Preparation of summaries

As the chapters addressing the results of the study are detailed and lengthy, brief summaries of the key findings were prepared.

o) Second-order synthesis

Not all the focus questions could be addressed through the data analysis procedure described above. Indeed, a second-order, or meta-, synthesis, demanding the scrutiny of the initial products of summative analysis, was necessary. This involved the identification of common information-seeking patterns and their representation in models, and the construction of a theory of development covering young people’s ideas, needs and behaviour in relation to information.

Models

These emerged from the incorporation of different typologies and the synthesis of new constructs so that a particular process could be demonstrated holistically. An overall model of information-seeking behaviour was prepared. This includes typologies of both information needs and information-seeking action on the part of the inquirer. Limberg (1999a) notes how most models represent information-seeking only on a general level, and fail to indicate individual differences between people. By including typologies specifically addressing such diversity, it is hoped that a less generalised, more variation-sensitive model has been created. Further, smaller scale models examine youngsters’ use of particular types of sources.

Theory of development

The highest level of abstraction within the project involved a “conceptual leap” to the production of a theory of development in the style of that constructed by Kuhlthau (1988c). This was achieved via examination of *qualitative* differences in the data provided by youngsters of different ages. It was not based on *quantitative* differences in the prevalence of the types of data from youngsters of one age group and those of another. The theory itself may be considered to be of the “substantive” type defined by Merriam (1998: 17), rather than the “grand”, and she considers this to be a typical product of case study inquiry. It must be emphasised that, since the informants’ data was specific to their situations, the stages defined in the theory are also particular to them. No claim is made that the theory is widely applicable.

10 IDENTIFICATION OF IMPLICATIONS OF DATA ANALYSIS

Before the closing reflective review took place, the final study task lay in using the project’s findings to address what Yin (1994: 71) terms “normative questions”. Recommendations were made in relation to two areas: in terms of research, including the identification of new questions for future projects in the field, and in terms of practice within LIS.

CHAPTER ELEVEN

THE STUDY'S POSITION ON THE POSITIVIST/NATURALISTIC CONTINUUM

This chapter draws on the account of the research design provided in the previous chapter to explore the overall methodological orientation of the study.

1 THE STANCE ADOPTED

The techniques employed in the study do not derive from the wholesale adoption of one particular methodological paradigm. Rather, they have been selected in response to the nature of the research question, the content areas and the focus questions, their implications and the constraining practical realities. The philosophical justification for the approach is summed up by Patton (1990: 193-94), who believes the investigator to have an “intellectual mandate” for selecting whatever techniques he or she considers most suitable, regardless of their paradigm. A similar argument is advanced by Grover and Fowler (1993: 242) and Dervin (1997: 30). On a more practical level, Mellon (1990: 6) and Layder (1993: 53) suggest that research can profit from the combination of qualitative and quantitative methods. In terms of specific benefits, Silverman (2001: 4) indicates that the latter may be useful to naturalistic researchers wishing to identify overall patterns in their data. Advocates of such combining are not solely confined to authors on research methods, however. Vakkari (1997: 458) quotes a range of investigators concerned with information-seeking who have employed techniques from both research frameworks in a single study. Kuhlthau (1989: 22, 1991: 369) and Friel (1995: 15), whose projects have incorporated the two approaches, are particularly enthusiastic in their support for using qualitative and quantitative methods in concert.

Whilst Erlandson et al (1993: 35), Krueger (1994: 29) and Miles and Huberman (1994: 2) point out that such mixing has become common, this eclecticism is not shared by all. Merriam (1998: 8) writes of the “ongoing debate” surrounding its validity, and Silverman (2000: xiii) believes that some researchers have become aligned into one of two “armed camps”. Lincoln and Guba (1985: 250-52) reside firmly in the qualitative domain. They assert unequivocally in relation to naturalistic inquiry, “Mix-and-match strategies are not allowed,” arguing that an investigator must accept the whole paradigm and *all* the methods it entails. Rossman and Wilson (1985: 629) label proponents of such a stance “purists”, and believe their steadfastness to stem from a belief that qualitative and quantitative approaches derive from “different, mutually exclusive epistemological and ontological assumptions about the nature of research and society”. Patton (1990: 59, 194) contests Lincoln and Guba’s view, asserting that the conducting and implementing of naturalistic inquiry is always “a matter of degree”. The danger of adopting the paradigm of naturalistic inquiry in its entirety for the Whitley Bay project is that the intended study foci may be compromised simply to accommodate the naturalistic principles involved. This implies shifting the ends in the light of the means rather than the more appropriate adjustment of the means to fit the ends.

2 ASSESSMENT AGAINST CRITERIA OF A NATURALISTIC STUDY

If Patton’s principle that naturalistic inquiry may be viewed as a continuum is accepted, the extent to which this project can be considered naturalistic, rather than positivist, may be gauged by investigating its

characteristics in terms of each of the fourteen features of naturalistic inquiry outlined by Lincoln and Guba (1985: 39-43).

a) Natural setting

Although the data collection dialogues were staged in a location familiar to the youngsters and one in which they might search for information, i.e. their own schools, this is just one environment in which their information-seeking might take place. Youngsters were not approached in any other settings. It must also be admitted that the decision to talk to informants in their schools was partly the result of logistics, as well as a desire to understand the youngsters in context.

Patton (1990: 40) highlights how “unobtrusive” methods are integral to naturalistic inquiry. However, the interview situation, bringing informants face-to-face with an unfamiliar person in a controlled manner, is hardly unobtrusive, and is far removed from the type of classroom interaction to which they are accustomed. As Gross (1998: 47) recognises, interviews “are adult situations we impose on children”.

b) Human instrument

In his dialogues with the interviewees and through his personal investigation of documents, the researcher made extensive use of his own abilities as a data collection instrument. He also exploited his human skills in the analysis, both formative and summative, of the data gathered.

c) Utilisation of tacit knowledge

Maykut and Morehouse (1994: 30-31, 123) suggest that tacit knowledge is that which is unformulated, unarticulated and gained by an individual from past experience. They believe that it is the result of “indwelling” - the process by which the researcher is “acutely tuned-in to the experiences and meaning systems of others”. In this context, the investigator had accumulated much intuitive knowledge during his teaching experience. It was applied implicitly throughout the project but was, perhaps, most obvious in interviews, where he responded to an informant’s body language by clarifying or elaborating as necessary. Similarly, his awareness of the youngsters’ different levels of maturity helped determine how he framed questions “on the spot” for pupils of different ages.

d) Qualitative methods

The main data collection techniques employed were among those which Maykut and Morehouse (1994: 46) consider typically qualitative - focus groups, individual interviews and documentary analysis. Nevertheless, since Lincoln and Guba (1985: 269) argue that, in naturalistic work, the interview is usually unstructured, and the project used a semi-structured approach, it cannot be considered to embrace pure naturalistic inquiry in this regard.

e) Purposive sampling

Lincoln and Guba (1985: 40) stress that most naturalistic studies favour purposive sampling. This strategy was used in the selection of Whitley Bay as the location for the fieldwork, yet at two levels - the sampling of forms within a year group and that of pupils in a form - random sampling was preferred. Although this technique is

typically associated with quantitative work, Mellon (1990: 49, 65) believes that the naturalistic investigator generally seeks representative cases, an aim that, in this study, determined the selection process for the sampling of youngsters within a form. Here, a random approach was thought most appropriate.

f) Inductive data analysis

According to Fidel (1993: 231), most commentators would consider this feature to be that which is most associated with naturalistic work. Here, as Sutton (1993: 416) explains, categories of data are not imposed from the outset but unfold internally from the data. This situation pertained in the study.

g) Grounded theory

The development of grounded theory formed a key aim of the project. No attempt was made to test an a priori theory. Rather, the overall information-seeking model and the theory of development were constructed entirely from the data supplied by the informants.

h) Emergent design

The study only partially exhibits the characteristics of emergent design as conceptualised by Lincoln and Guba (1985: 41, 208-11). Formulation of a tentative framework was an advance requirement for the project since detailed proposals had to be prepared for both the University and the fund-providing British Academy. The researcher himself also considered some form of preliminary plan essential to guide the investigation. Care was taken to tread the line described by Sutton (1993: 418) - a theoretical set of methods was established in order to conceive the study, yet the investigator was keen to respond to new directions that emerged during the work. Brewer and Hunter (1989: 57-58) comment that the most radical advocates of emergent design argue that even such fundamentals as the research question should arise during the fieldwork, rather than in advance. Within this project, such a stance would have been impossible. When permission was sought from Headteachers to use their schools as fieldwork centres, they expected a structured outline of the work to be put before them. According to Anderson (1987: 304), such gatekeepers often apply pressure on the researcher to "tell us exactly what you are going to do". Questions may also be asked of the desirability, as well as practicality, of entering the field without a guiding framework. Miles (1983: 119) suggests that, in the face of the consequent "openness", it is easy for the researcher to produce "an incoherent, bulky, irrelevant, meaningless set of observations... which no one can... make sense of".

It was recognised from the outset that plans within the proposals were subject to change. In practice, significant alterations were made in response to unforeseen circumstances arising in the schools. For example, the willingness of several members of staff to offer data enabled the researcher to enrich his study through these contributions, although it was not originally envisaged that formal interviews would be held with them. Moreover, some youngsters, when describing certain information needs arising from homework, showed the investigator materials such as assignment briefs or even their finished work. Again, the use of such items was not included in the research design but opportunities were seized when they emerged. In addition, it was not until after preparation of the interview transcripts that the decision was taken to use material from the first part of each data collection session to investigate youngsters' implicit understanding of the concept of information. The final element introduced into data collection was added even after the main analysis phase, when it was

decided that public library staff should be interviewed in order to gain a greater understanding of information provision in and around Whitley Bay.

Maykut and Morehouse (1994: 44) consider the recognition of important leads at the time when the data is examined, followed up by the identification of new questions and the collection of data in response, to be key features of emergent design. In this context, the researcher used later dialogues to test theories that had emerged from the data already collected. Furthermore, just as the content of some of the later data gathering sessions could not be determined at the outset of the study, the number of pupils interviewed in each school could be decided only when the number of schools taking part was known.

i) Negotiated outcomes

Provision was made during, and at the end of, the data collection dialogues to ensure that the youngsters' experiences and viewpoints had been correctly recorded. In addition, older pupils were asked for their reactions to the investigator's theories and were encouraged to offer explanations for patterns he had observed.

j) Case study reporting mode

The thesis employs typically naturalistic strategies for reporting findings, such as the use of informants' own words. If one accepts that, at its most fundamental, naturalistic inquiry takes research "beyond the numbers game" in the manner described by Hamilton et al (1977), the use of direct quotations from participants is perhaps the strongest evidence of this project's qualitative nature. Nevertheless, Lincoln and Guba's (1985: 364) suggestion that the report should take the form of a "novelesque story" must be queried in view of the expectations of examiners. Similarly, although Lincoln and Guba (1985: 361-63) advocate that methodology should be dealt with in a separate volume, in this study the power to make such a radical decision did not rest with the researcher.

k) Idiographic interpretation

The presentation of findings incorporates a strong idiographic element, with individual instances often described in detail. The characteristics of pupils in a specific year group or a particular school are also occasionally discussed.

l) Tentative application

The research was not designed to provide results that might be applied to the world beyond the case study location. Indeed, the project's priorities were consistent with what Eskola (1998) considers to be the typical purpose of qualitative work - to gain an in-depth understanding of a phenomenon, not to produce generalisable findings. The typologies, models and developmental picture of young people's information universes are indicative, grounded in the specific situations within the Whitley Bay schools and the young people's lives, rather than predictive and of wider applicability. Nevertheless, by providing background description of the case study sites, the work offers readers an indication of the investigation's "sending context". They may then determine for themselves whether or not it is appropriate to transfer the results and their implications to their own particular situations.

m) Focus-determined boundaries

The manner in which the work's boundaries were determined by its focus is, perhaps, best understood in relation to sampling. The choice of Whitley Bay as the location for fieldwork was partially the result of the town's appropriateness in terms of the project's emphasis on the development of information-seeking as young people move through childhood. Similarly, the strategy for sampling the school year groups was adopted specifically in response to the nature of the research question, and the inclusion of representatives from each year group was believed essential if coverage of pupils of *all* ages from four to eighteen was to be provided.

n) Special criteria for trustworthiness

Although Yin (1994: 32-38) shows how traditional, positivist criteria may be applied within a case study, these terms were not adopted in this project, as their transfer from the quantitative domain to such a different form of research seemed too contrived. The criteria for trustworthiness actually employed are those advocated by Lincoln and Guba (1985: 301-31), and the steps taken by the researcher to meet them are explained in the following chapter.

3 AN OVERALL JUDGEMENT

The study does not meet to a sufficient degree all the criteria considered above for it to be regarded as one of pure naturalistic inquiry. Nevertheless, there is enough congruence between Lincoln and Guba's characteristics and the features of the research with respect to these areas to indicate that, methodologically, the work lies much closer to the naturalistic end of the spectrum than the positivist.

CHAPTER TWELVE

PROVISIONS FOR TRUSTWORTHINESS

This chapter reports the attempts made by the researcher to ensure that his work may be considered trustworthy. After covering the issues that may be addressed by a investigator wishing to make a "sound" qualitative study - credibility, transferability, dependability and confirmability - the chapter discusses the measures that have been taken to satisfy each of these criteria.

1 NATURALISTIC CRITERIA FOR RESEARCH QUALITY

The trustworthiness of qualitative research is often questioned by positivists, perhaps because, as Patton (1990: 372) notes, their concepts of validity and reliability cannot be addressed in the same way in naturalistic work. Although Yin (1994: 32-38) demonstrates how a case study researcher can incorporate measures that deal with these issues, and Pitts (1994: 85-89), in her qualitative project, refers to her own responses to validity and reliability, Creswell (1994: 157) recognises that many naturalistic investigators in recent years have preferred to use new terminology to distance themselves from the positivist paradigm. One such author is Guba (1981: 80, 83-88), who proposes four criteria he believes should be considered by qualitative researchers in pursuit of a trustworthy study. By addressing similar issues, they correspond to the criteria employed by the positivist investigator:

- a) **credibility** (in preference to internal validity);
- b) **transferability** (in preference to external validity/generalisability);
- c) **dependability** (in preference to reliability);
- d) **confirmability** (in preference to objectivity).

Although as recently as the mid 1990s Lincoln (1995: 275) wrote that the whole area of qualitative inquiry was "still emerging and being defined", Guba's constructs have been accepted by many, including McGregor (1993: 36-37). His criteria have been adopted within the Whitley Bay study and a range of provisions made to meet them. These are summarised in Figure L.

1.1 Credibility

According to Merriam (1998: 201), this term deals with the question, "How congruent are the findings with reality?" Lincoln and Guba (1985: 213) argue that ensuring credibility is one of most important factors in establishing trustworthiness. The following may promote confidence that the investigator has accurately recorded the phenomena under scrutiny:

- a) **the adoption of research methods well established both in qualitative investigation in general and past studies of young people's information-seeking in particular.** Yin (1994: 33) recognises the importance of incorporating "correct operational measures for the concepts being studied". Thus, the specific procedures employed, such as the line of questioning pursued in the data gathering sessions and the methods of data analysis, are derived, where possible, from those that have been successfully utilised in previous comparable studies;
- b) **the development of an early familiarity with the culture of participating schools before the first data collection dialogues took place.** This was achieved via consultation of appropriate documents, such as

FIGURE L: PROVISIONS FOR TRUSTWORTHINESS IN STUDY

| Criterion | Quantitative term | Qualitative term | Provision within study |
|---------------|-------------------|------------------|---|
| Truth value | Internal validity | Credibility | Adoption of appropriate, well recognised methods informed by previous research in the area Advance consultation of school-related documents to develop early familiarity with the organisations involved Random sampling of forms within a year group and of pupils within a form Triangulation via the use of different methods, different data sources and different sites Voluntary pupil participation and an atmosphere of openness within data gathering sessions Iterative questioning in data collection dialogues Negative case analysis Debriefing sessions with the project supervision team and a local Headteacher Peer scrutiny Use of a “reflexive commentary” for recording observations made, patterns identified, theories formed and ideas on the value of the methods employed Member checks of data collected and interpretations/theories formed Examination of previous research to frame findings Background, qualifications and experience of the researcher |
| Applicability | External validity | Transferability | Provision of data in relation to the town in which the fieldwork was conducted and the schools involved |
| Consistency | Reliability | Dependability | Employment of “overlapping methods”, i.e. focus groups and individual interviews In-depth methodological description to allow the study to be repeated |
| Neutrality | Objectivity | Confirmability | Triangulation to reduce the effect of investigator bias Admission of the researcher’s beliefs and assumptions Recognition of shortcomings in the study’s methods and their potential effects In-depth methodological description to allow the integrity of research results to be scrutinised |

prospectuses, school development plans and curriculum policy statements. Lincoln and Guba (1985: 301-05) and Erlandson et al (1993: 132-36) recommend “prolonged engagement” between the investigator and the participants in order both for the former to gain an adequate understanding of the organisation and to establish a relationship of trust between the parties. In this project, however, it was feared that the staff involved might consider observation of the youngsters in lessons in advance of the actual fieldwork to be too intrusive, and Headteachers might be deterred from cooperating. Instead, a partial insight into life within each organisation was gained via the documents, as well as the researcher’s own experience of the schools as a practising teacher. Some suspicion of prolonged engagement also developed in view of the undesirable side effects noted by Lincoln and Guba (1985: 303-04) and Silverman (2000: 11). The former draw particular attention to the way in which investigators may become so involved in the culture under scrutiny that their professional judgements are influenced.

Although the importance of the preliminary period in fostering the participants’ trust should not be underestimated, youngsters in many schools are accustomed to talking to a variety of visitors. The work of the researcher was thus felt unlikely to cause significant abnormal behaviour in the pupils or to reduce the honesty of their responses;

c) **random sampling** of forms within a year group and of individuals in a form to negate charges of researcher bias in their selection;

d) **triangulation**

- ***via different methods***, especially the focus group and individual interview. Whilst they suffer from some common methodological shortcomings since both are interviews of a kind, their distinct characteristics also result in particular strengths. According to Guba (1981: 86) and Brewer and Hunter (1989: 16-17), the use of different methods in concert compensates for their individual limitations and exploits their respective benefits. The fact that drawings made by the informants during the interviews formed another source of data further increased the strength of the study. Information was also obtained from documents to provide a background to and help explain the youngsters’ attitudes and behaviour, as well as to verify particular details that individuals had supplied. On occasion, during the course of dialogues, youngsters produced assignment briefs or even their actual work when describing certain school projects that they were undertaking or had recently completed. These materials corroborated the data supplied orally, and increased the investigator’s understanding of what had been asked of the pupils;

- ***via data sources:***

In terms of personal dialogues

⇒ ***use of different youngsters*** as research subjects in order to allow individual viewpoints and experiences to be verified against others and, ultimately, to present a rich picture of youngsters’ “information universes” based on the contributions of a range of informants. Van Maanen (1983: 51) urges the exploitation of opportunities “to check out bits of information across informants” and, in this project, such corroboration often involved comparing the school-related information needs described by one individual with those of other pupils in a comparable position;

⇒ ***use of both youngsters and adults as informants***. Whilst the thrust of the study lies in investigating the ideas and experiences of *young people*, data provided by school and public library staff was used

to check that supplied by the youngsters, to help explain their attitudes and behaviour and to enhance the contextual data relating to the fieldwork sites;

In terms of materials

- ⇒ *scrutiny of a range of documents*. In addition to the materials contributed by youngsters, documents created corporately by each participating school were scrutinised. The investigator also consulted other sources devoted to these schools but produced externally. Further data was elicited from official publications, such as the National Curriculum (Department for Education, 1995c) and the National Literacy Strategy (Department for Education and Employment, 1998b);
- *via sites*, i.e. use of several fieldwork centres so as to reduce the effect on the study of particular local factors peculiar to one institution. Where similar results emerge at different sites, findings may have greater credibility in the eyes of the reader. The sampling of a range of youngsters from different schools was intended to provide the diversity that underpins Dervin's (1983: 7) concept of "circling reality", which she defines as "the necessity of obtaining a variety of perspectives in order to get a better, more stable view of 'reality' based on a wide spectrum of observations from a wide base of points in time-space";
- e) **tactics to help ensure honesty in pupil informants when contributing data:**
- *voluntary participation*. Each youngster approached was given opportunities to refuse to participate in the project at the preliminary meeting and at several points thereafter. Thus, the focus groups and individual interviews included only those who were willing to take part and prepared to offer data freely;
 - *atmosphere of openness*. Participants were encouraged to be frank from the outset of each session, with the researcher aiming to establish a rapport in the opening moments, indicating that there were no right answers to his questions and affirming that the project was unconnected with any school work. The independent status of the researcher was also emphasised. Pupils could, therefore, contribute ideas and talk of their experiences without fear of losing credibility in the eyes of their teachers;
- f) **iterative questioning**. In addition to the "preventative" strategies outlined above, specific ploys were incorporated to uncover deliberate lies. These included the use of probes to elicit detailed data and iterative questioning, in which the researcher returned to matters previously raised by an informant and extracted related data through rephrased questions. Where contradictions emerged, falsehoods could be detected and the suspect data was discarded;
- g) **negative case analysis**, as recommended by commentators such as Lincoln and Guba (1985: 309-13), Miles and Huberman (1994: 271) and Silverman (2000: 180-84). Lincoln and Guba explain how the technique takes the form of the researcher refining a hypothesis until it addresses all cases within the data. In the study, work of this kind took place after development of the typologies and involved the investigator's revisiting the data in order to confirm that his constructs did indeed account for all instances of the phenomenon involved;
- h) **frequent debriefing sessions** with the project supervision team within the University and a Headteacher from the case study town. Through discussion, the vision of the researcher was widened as others brought to bear their experiences and perceptions. Collaborative sessions with the supervisors were used by the investigator to discuss alternative approaches, and occasionally the team drew attention to flaws in his proposed courses of action. The meetings also provided a sounding board for the researcher to test his

developing ideas and interpretations, and he was able to recognise his own biases and preferences after probing from the team. The strategies employed for gaining access to the schools were heavily influenced by advice from the Headteacher, who outlined the most convenient procedures from his point of view;

- i) **peer scrutiny of the research project.** After approval from the British Academy, the proposal was appraised by the University's Research Degrees Committee as part of the registration process. Some eight months into the study, the researcher was required to give a presentation to the University's academics. The fresh perspective that they were able to bring allowed them to challenge assumptions made by the investigator, whose closeness to the project had inhibited his ability to view it with such detachment. Their questions and comments led him to refine his methods and strengthen his arguments in several areas. At a similar time, meetings were held with the Headteachers of the schools approached as fieldwork centres. Again, a short presentation was made and cognisance was taken of the Headteachers' responses. At the stage of project review, in early 2000, a progress report was written. This was followed by two vivas involving subject experts. Modifications were made and further explanation of the research design offered in the light of the comments made;
- j) **the researcher's "reflexive commentary".** In addition to the outside scrutiny discussed above, the investigator, himself, sought to evaluate the project as it developed. This was largely done through that part of the reflexive commentary devoted to the effectiveness of his techniques. Prior to summative data analysis, the reflexive commentary was also used to record the researcher's initial impressions of each data collection session, patterns appearing to emerge in the data collected and theories generated. It played a key role in what Guba and Lincoln (1989: 238) term "progressive subjectivity", or the monitoring of the researcher's own developing constructions, which the writers consider critical in establishing credibility. Ultimately, the section of the commentary dealing with emerging patterns and theories informed the chapters of the thesis addressing the project's results (Chapters Fifteen to Seventeen), and the discussion of the effectiveness of the study (Chapter Twenty-one) is mainly based on the investigator's methods analysis within the reflexive commentary;
- k) **member checks,** which Guba and Lincoln (1989: 239) consider the single most important provision that can be made to bolster a study's credibility. Checks relating to the accuracy of the data took place "on the spot" in the course, and at the end, of the data collection dialogues. The contextual information relating to the case study sites was also read for accuracy by the Headteachers of the appropriate schools.

Another element of member checking involved verification of the investigator's emerging theories and inferences as these were formed during the dialogues. A similar strategy has been employed by Pitts (1994: 87) in her own PhD research and is recommended by Brewer and Hunter (1989: 88-89) and Miles and Huberman (1994: 275). Occasionally youngsters were asked if they could offer reasons for particular patterns observed by the researcher. The motivation for pursuing this approach was based on Van Maanen's (1983: 51) argument that, in qualitative research,

"analysis and verification... is something one brings forth with them from the field, not something which can be attended to later, after the data are collected. When making sense of field data, one cannot simply accumulate information without regard to what each bit of information represents in terms of its possible contextual meanings."

- l) **examination of previous research findings** to assess the degree to which the project's results are congruent with those of past studies. Silverman (2000: 12) considers that the ability of the researcher to relate his or her findings to an existing body of knowledge is a key criterion for evaluating works of qualitative inquiry;
- m) **background, qualifications and experience of the investigator.** According to Patton (1990: 461), the credibility of the researcher is especially important in qualitative research as it is the person who is the major instrument of data collection and analysis. Alkin, Daillak and White (1979: 245) even suggest that a scrutineer's trust in the researcher is of equal importance to the adequacy of the procedures themselves. In this study, the investigator's dual qualifications in education and librarianship and his actual teaching experience provided him with an understanding that permeated his planning and implementation of the project. The thesis alludes to this background where appropriate.

The nature of the biographical information that should be supplied is a matter of debate. Maykut and Morehouse (1994: 155) recommend including any personal and professional information relevant to the phenomenon under study, and Patton (1990: 472) adds that arrangements by which the investigator is funded should also be addressed. Both matters are covered within the biographical profile that precedes the main body of the thesis. It should also be noted that some credibility and authority were provided by the fact that the project received the official backing of the British Academy, who supplied the finance, the Research Degrees Committee of the University of Northumbria, under whose auspices the study took place, and the Head of School Services for North Tyneside, where the fieldwork was staged.

1.2 Transferability

Merriam (1998: 207) writes that external validity "is concerned with the extent to which the findings of one study can be applied to other situations". Since the findings of a qualitative project are specific to a small number of particular environments and individuals, it is impossible to demonstrate that the results and conclusions are applicable to other situations and populations. Erlandson et al (1993: 32) note that many naturalistic inquirers believe that, in practice, even conventional generalisability is never possible as all observations are defined by the specific contexts in which they occur. A contrasting view is offered by Stake (1994: 243) and Denscombe (1998: 36), who suggest that, although each case may be unique, it is also an example of a broader group and, as a result, the prospect of transferability should not be immediately rejected. Nevertheless, such an approach can be pursued only with caution since, as Gomm, Hammersley and Foster (2000: 99) recognise, it appears to belittle the importance of the contextual factors which impinge on the case.

Bassey (1981: 85) proposes that, if practitioners believe their situations to be similar to that described in the study, they may relate the findings to their own positions. Lincoln and Guba (1985: 217, 297-98) and Firestone (1993: 18) are among those who present a similar argument, and suggest that it is the responsibility of the investigator to ensure that sufficient contextual information about the fieldwork sites is provided to enable the reader to make such a transfer. They maintain that, since the researcher knows only the "sending context", he or she cannot make transferability inferences. Such a stance is adopted in this study. After perusing the description of the context in which the work was undertaken (Chapter Fourteen), readers must determine how far they can be confident in transferring to other situations the results, models and developmental picture presented. Authors disagree on the nature and extent of background information that

should be offered but few would dispute the need for “a full description of all the contextual factors impinging on the inquiry”, as recommended by Guba (1981: 86). Nevertheless, the situation is complicated by the possibility, noted by Firestone (1993: 22), that factors considered by the researcher to be unimportant, and consequently unreported in the thesis, may be critical in the eyes of a reader.

The project stops short of the course of action advocated by Denscombe (1998: 37, 40) that the researcher should demonstrate how, in terms of the contextual data, the case study locations compare with other environments. This reluctance is based on the fact that the process would demand a considerable knowledge of the “receiving contexts” of other schools and geographical areas, and the researcher is in no position to comment on what Merriam (1998: 211) calls the “typicality” of the environments in which the fieldwork took place.

Cole and Gardner (1979: 190), Marchionini and Teague (1987: 153) and Pitts (1994: 88-89) draw attention to the importance of the researcher’s conveying to the reader the boundaries of the study. This additional information must be considered before any attempts at transference are made. Thus, the following should be understood from the outset.

- a) The youngsters sampled were all school pupils from four to eighteen years of age.
- b) 188 pupils in total contributed data.
- c) Fieldwork was undertaken only within the town of Whitley Bay.
- d) This work took place within six of the thirteen Whitley Bay schools.
- e) Data was collected from no more than ten pupils within each year group.
- f) The principal data collection methods were the focus group and individual interview.
- g) Fieldwork with pupils was staged during the three terms of the 1999/2000 academic year.

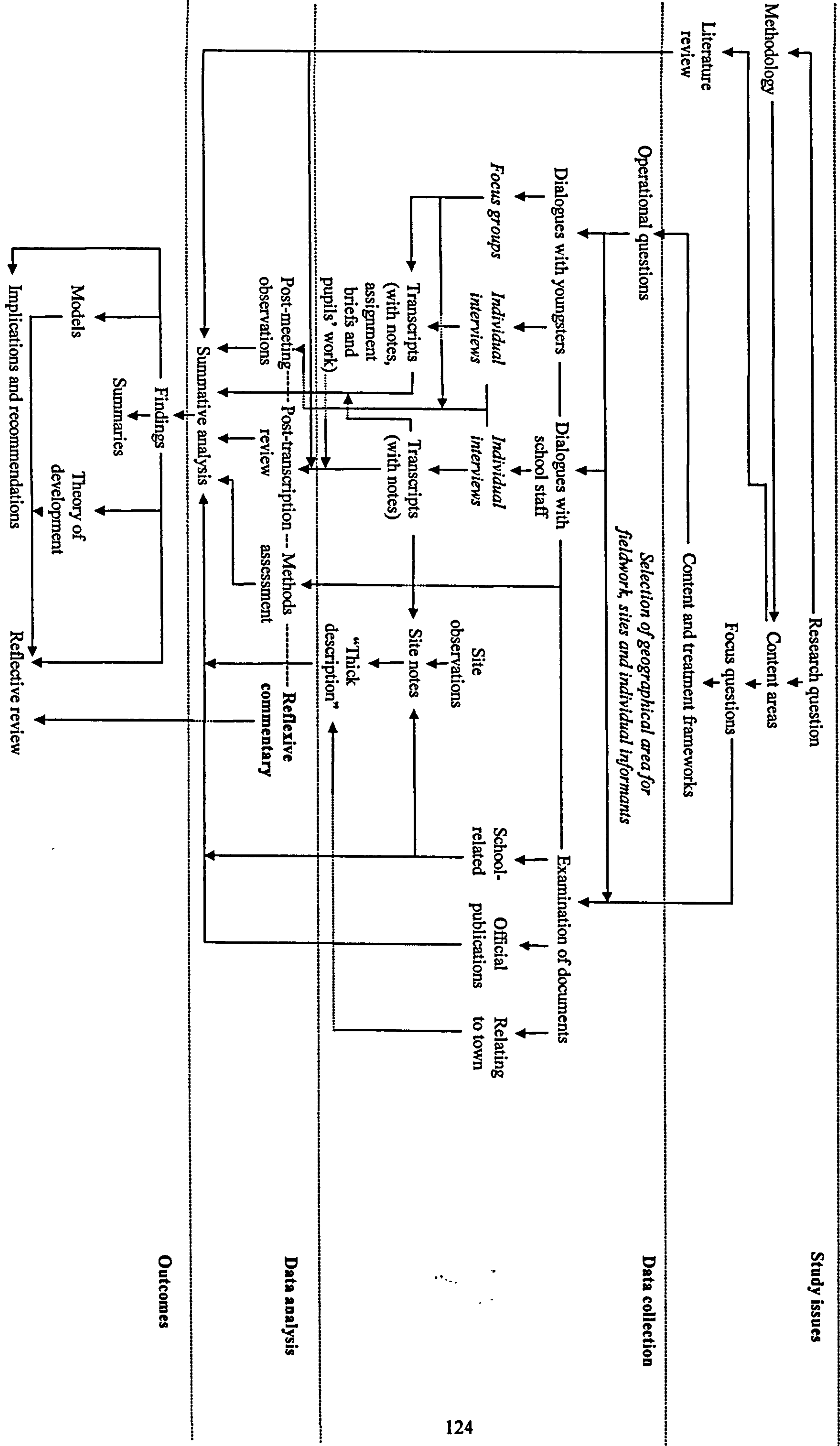
1.3 Dependability

In addressing the issue of reliability, the positivist employs techniques to show that, if the work were repeated in the same context, with the same participants, similar results would be obtained. However, as Fidel (1993: 231) and Marshall and Rossman (1999: 194) note, the changing nature of the phenomena investigated by qualitative researchers renders such provisions problematic in their work. Florio-Ruane (1991: 237) highlights how the investigator’s observations are tied to the situation of the study, arguing that the “published descriptions are static and frozen in the ‘ethnographic present’”. Lincoln and Guba (1985: 316-17) stress the close ties between credibility and dependability, arguing that, in practice, a demonstration of the former goes some distance in ensuring the latter. This may be achieved through the use “overlapping methods”, here the focus group and individual interview.

In order to address the dependability issue more directly, the processes within the study are reported in some detail, thereby enabling a future researcher to repeat the work, if not necessarily to gain the same results. Thus, the research design may be viewed as a “prototype model”. Such in-depth coverage also allows the reader to assess the extent to which proper research practices have been followed. Any reader wishing to develop a thorough understanding of the methods and their effectiveness should consult the chapters devoted to

- a) the research design and its implementation, which describes what was planned and executed on a strategic level. The whole inquiry process is shown diagrammatically in Figure M;
- b) the operational detail of data gathering, which addresses the minutiae of what was done in the field;

FIGURE M: OVERALL MODEL OF RESEARCH PROCESS



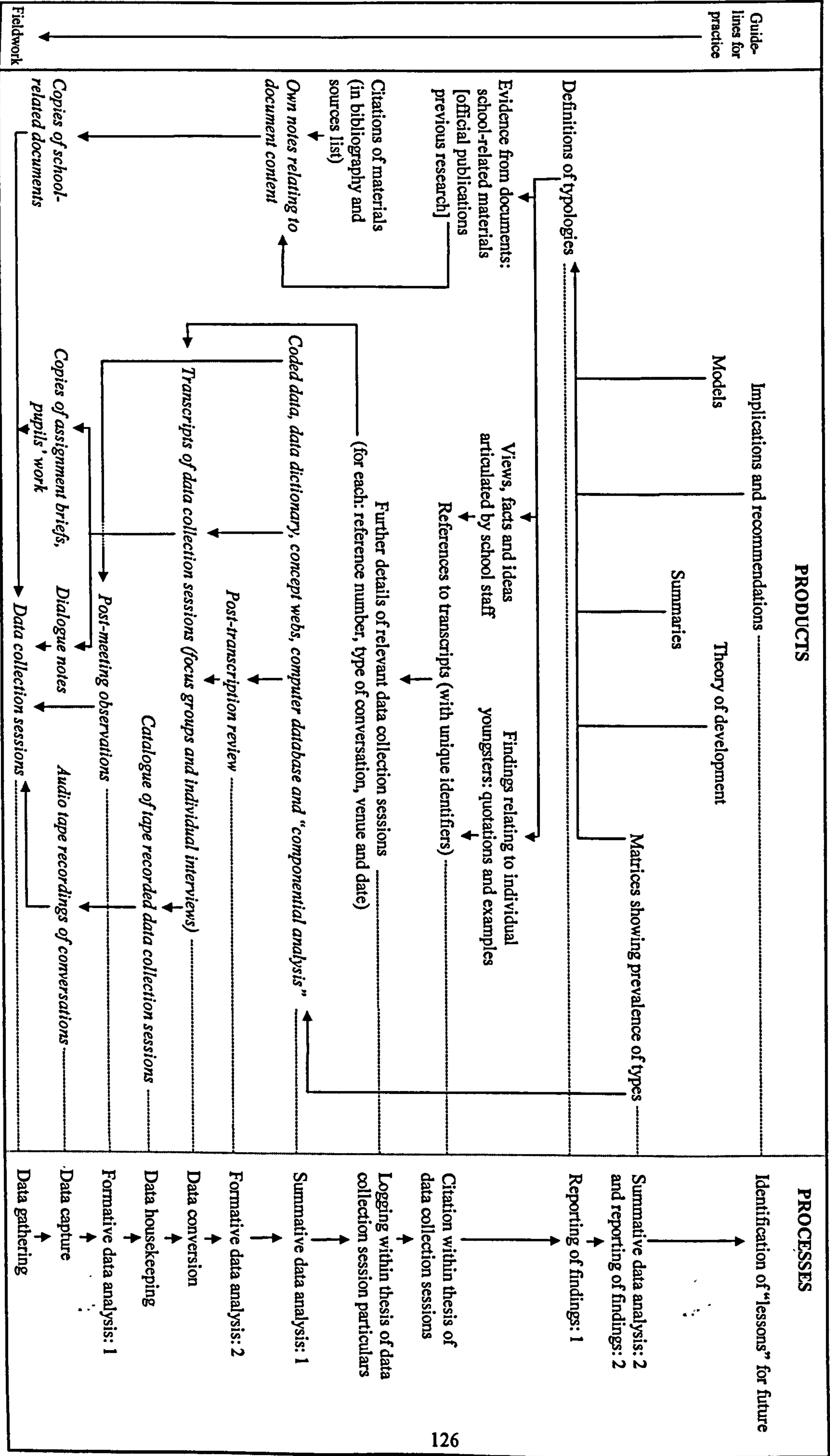
c) reflection on the research project, which evaluates the effectiveness of the process of inquiry undertaken.

1.4 Confirmability

To help ensure that the work's findings are the result of the experiences and ideas of the youngsters, rather than the characteristics and preferences of the researcher, the role of triangulation must again be emphasised, in this context to reduce the effect of investigator bias. Miles and Huberman (1994: 278) consider that a key criterion for confirmability is the extent to which the researcher admits his or her own predispositions. To this end, beliefs underpinning decisions made and methods adopted are acknowledged within the thesis, the reasons for favouring one approach when others could have been taken explained and weaknesses in the techniques actually employed admitted. In terms of results, preliminary theories that ultimately were not borne out by the data are also discussed. Much of the content in relation to these areas is derived from the "reflexive commentary". The specific posture adopted by the researcher as regards his position on the positivist/naturalistic continuum is elucidated in the following chapter.

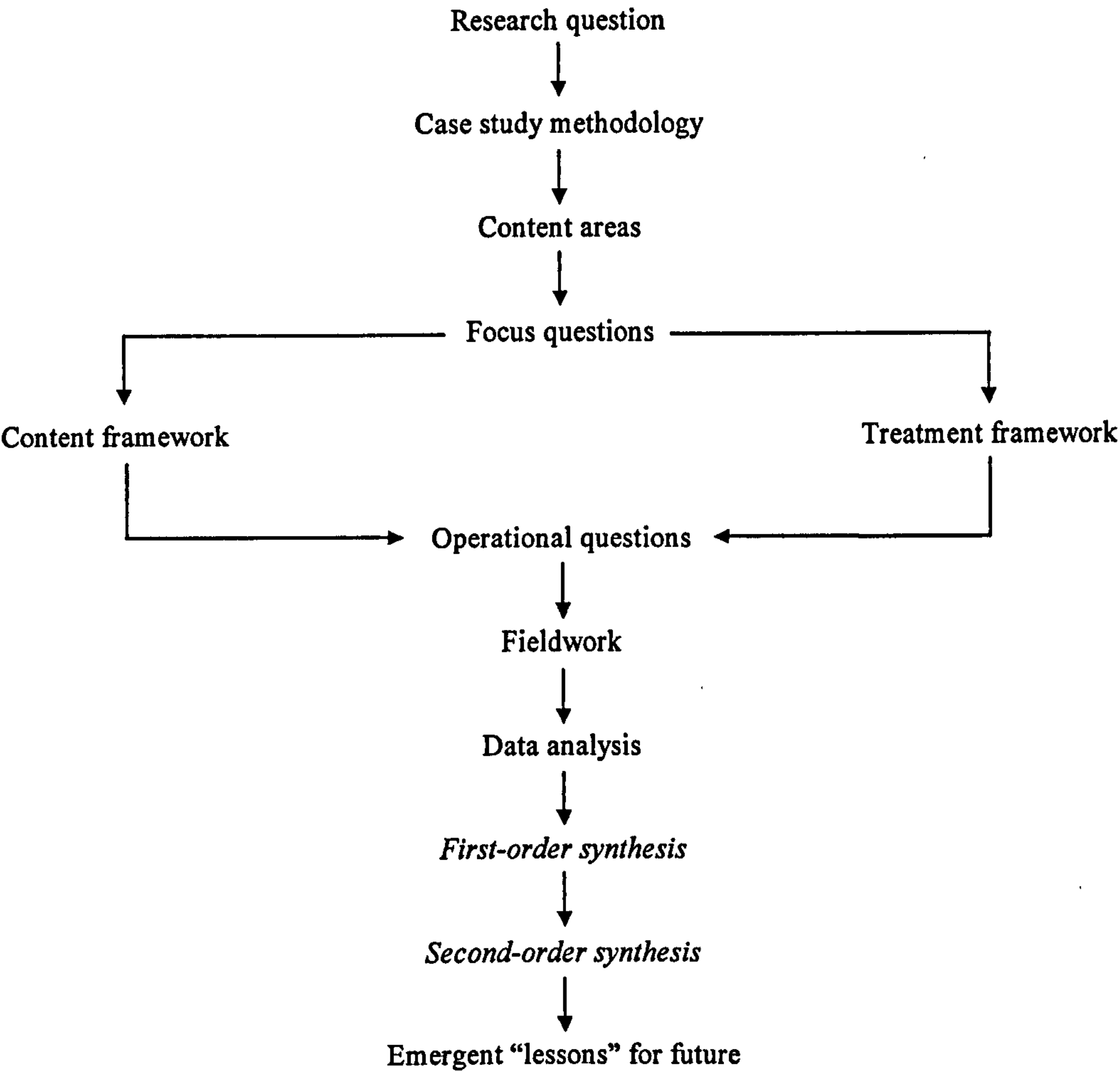
Once more, detailed methodological description enables the reader to determine how far the data and constructs emerging from it may be accepted. Critical to this process is the "audit trail", which allows any observer to trace the course of the research step-by-step via the decisions made and procedures described. The "audit trail" is represented diagrammatically in two ways in Figures N and O. The former takes a *data-oriented* approach, showing how the data eventually leading to the identification of implications and the formation of recommendations was gathered and processed during the course of the study. This is what is typically understood by the term, "audit trail". In addition, however, it was felt that the manner in which the concepts inherent in the research question had given rise to the work to follow should be tracked. This more *theoretical* "audit trail", which should be understood in terms of the whole of the duration of the project, is depicted in the second diagram.

FIGURE N: *PRACTICAL, DATA-ORIENTED “AUDIT TRAIL” - FROM IMPLICATIONS/RECOMMENDATIONS TO FIELDWORK*



Italics refer to products not apparent in the thesis itself.

FIGURE 0: THEORETICAL, CONCEPTUAL “AUDIT TRAIL” -
FROM RESEARCH QUESTION TO IMPLICATIONS/RECOMMENDATIONS



CHAPTER THIRTEEN

THE OPERATIONAL DETAIL OF DATA GATHERING IN THE FIELD

This chapter offers a chronological account of the logistics of the fieldwork, beginning with an outline of the methods that the researcher employed to gain access to schools. Much of the chapter describes how background information in relation to these organisations was collected, both in advance of and during the fieldwork, how the sample size was determined and how the main phase of data collection took place.

1 STRATEGIES FOR GAINING ACCESS

Six tactics were adopted by the investigator in his attempts to gain access to the schools:

- a) the “known sponsor approach” recommended by Patton (1990: 254). The researcher indicated that he had already secured funding from the British Academy when he made his first approach to North Tyneside’s Head of School Services. After gaining her backing, he was able to refer to support from three parties - the British Academy, the Head of School Services and, of course, his University - when contacting the individual schools;
- b) phased entry. Initially, Whitley Bay schools were asked merely to complete the questionnaire and provide a copy of the prospectus. This gave the researcher a foothold in each organisation since, when its further involvement was sought later, he was able to identify himself as someone with whom the institution had previously had contact;
- c) reciprocity. Sharp and Howard (1996: 131) believe that entry is best ensured if the researcher agrees to share the fruits of his work with the collaborating organisations. To this end, all the Whitley Bay schools were given a copy of the investigator’s literature review. They were also informed that the project’s eventual findings would be disseminated to all the organisations serving as fieldwork centres;
- d) openness. The parties approached - the Head of School Services, Whitley Bay Headteachers and the parents of youngsters ultimately selected - were given honest explanations of the work, especially emphasising its implications for them;
- e) professional suitability. During discussions with education professionals, the researcher exploited his teaching experience and membership of the Association of Teachers and Lecturers to demonstrate an awareness of developments and practices within schools. In order to assure school staff that he presented no danger to their pupils, he also referred to the clear police check he had received in advance of his initial teacher training;
- f) past links. In his early contact with the Head of the School Services and Headteachers, the investigator stressed his Whitley Bay connections, especially his lifelong residency, his attendance at three of the town’s schools and his teaching experience in another. So as to gain access to the pupils in individual forms, the researcher took advantage of the fact that several of the Form Teachers were known to him. Where the randomly-selected pupils had been taught by him, this was stated in the letters to parents. The willingness of many of these pupils to participate in the fieldwork might be partly attributable to their past association with the investigator.

2 PRELIMINARY SURVEY VIA QUESTIONNAIRE

2.1 Content of the questionnaire

Three versions of the questionnaire (reproduced in Appendix Two) were prepared, with each intended for schools of a certain phase. The data to be collected, which was similar in each case, fell into the three broad categories explained below:

- a) **identification information** (see questions one and two of each questionnaire), relating to the respondent's name and job title;
- b) **administrative information** (see questions three and four of each questionnaire). Two initial assumptions were made regarding the manner in which forms would be structured: each would consist of mixed ability pupils and none would include youngsters from more than one year group. It was not, however, definitely known that this pertained in all Whitley Bay schools. To allow procedures to be developed in advance of the main fieldwork to meet any exceptional situations, data relating to this area was collected at this early stage;
- c) **transfer information** (see remaining questions of each questionnaire). All first and middle schools were asked for breakdowns of the school destinations of the youngsters who had left the previous summer and to comment on whether or not the statistical balance of those going to the different receiver schools was consistent with past patterns. So as to verify the accuracy of this data, institutions at the two highest phases were requested to supply breakdowns of the previous schools attended by pupils entering in September 1998. Again, comments were made on whether or not the balance was typical of recent years.

2.2 Administration of the questionnaire

Following modifications to the questionnaire after its pre-testing by a current Whitley Bay Headteacher, on 1st March 1999 the researcher visited each school within the case study town. The clerk was asked to provide a copy of the school prospectus, and an envelope containing an introductory letter and the appropriate questionnaire was left for the Headteacher. The letter gave brief background on the project and the researcher, and requested that the questionnaire be completed. A specimen copy of the letter is reproduced in Appendix One. All schools returned their questionnaires either within a fortnight or after a subsequent reminder.

2.3 Data collected

2.3.1 In relation to administrative information

As anticipated, the forms in all the fourteen schools were found to consist of mixed ability pupils. In all but four of the schools forms were made up of youngsters from the same year group. In the exceptions, inconvenient numbers meant that some forms had to include pupils from two different year groups. Here complications might arise if youngsters from forms in these schools were sampled. It might, for example, be impossible to draw, from a mixed year form, samples of pupils from two different year groups if the form contained few youngsters from one of them. It was decided, therefore, to avoid selecting pupils from these forms if there were other forms in the school consisting entirely of pupils from each of the two year groups.

2.3.2 In relation to transfer information

The preliminary survey revealed that a significant proportion of pupils entering three of Whitley Bay's six middle/high schools in September 1998 had not attended any of the town's schools at the previous phase, although only one of these three - School D-2 - actually took part in the study. Here as many as 29% of the 1998 Year Five intake came from outside schools. Thus, when sampling School D-2's pupils, it could not be assumed that they had all previously attended first schools within Whitley Bay.

3 APPROACHES TO SCHOOLS FOR FIELDWORK

After analysis of the questionnaire data, a letter was drafted seeking permission from each Headteacher to stage fieldwork within his or her institution. These letters, a specimen of which is included in Appendix Three, were mailed on 10th May 1999. They concluded with a request by the researcher for a meeting to discuss the project. Seven Headteachers agreed to this appeal, and all but one of these ultimately allowed the use of his or her school as a fieldwork centre. Three were first schools (A-1, C-1 and G-1), two middle (C-2 and D-2) and one a high (B-3).

Although the research design did not indicate that interviews would be carried out with school staff, during discussion of the study several Headteachers referred to their own experience of pupils' information-seeking. It soon became apparent that the knowledge possessed by these professionals could increase triangulation, extend the knowledge base developed during the literature review and might help explain youngsters' information behaviour. Some Headteachers also offered contextual information relating to their schools, and even arranged on-the-spot interviews for the investigator with other appropriate staff. This reduced the need to rely exclusively on documents when assembling "thick description" in the thesis. Whenever a useful discussion took place between the researcher and an adult, notes were taken and a transcript prepared at the first opportunity. Since the dialogues were often spontaneous, they could not be tape-recorded. Nevertheless, the fact that the data could be incorporated into the project vindicated the case study approach, which enabled opportunities to be seized as the work developed. Details of all dialogues with school staff are given in Appendix Seven.

4 RESEARCHER'S PAST CONTACT WITH THE SAMPLED SCHOOLS

All the participating schools were well known to the researcher as he had visited each in discharging his duties as a teacher. School G-1 was especially familiar because it was there that he had served for four and a half years, relinquishing his post only months before the project began. One of his colleagues was a member of staff who had become the Headteacher of School C-1 by the time of the study. The investigator was also known to some of the staff in the middle school (School D-2) that adjoined his own organisation, since he had supervised the annual transfer of his Year Four pupils to that institution. Although he had attended Schools C-2 and B-3 as a child, both had undergone radical changes in recent years.

5 DETERMINATION OF NUMBERS OF YOUNGSTERS TO BE SAMPLED

The number of pupils at each level to take part in the focus group discussions had already been determined but only when it became known how many schools were to participate could the number of pupils to be interviewed individually in each year group be established. The decision made was based on the principle that sufficient

data must be collected for patterns to be identified, yet, if there were too many participants, the volume of data gathered would prove unmanageable. Cognisance was taken of the advice of Lincoln and Guba (1985: 235), who suggest, “a dozen or so interviews, if properly selected, will exhaust most available information; to include as many as twenty will surely reach well beyond the point of redundancy”. These boundaries were adopted as far as possible by the investigator when determining the numbers of youngsters to be interviewed individually in each school. Since focus groups were to be administered by splitting each school into halves, it was considered that similar divisions should be employed in relation to the number of youngsters to be interviewed one-to-one. To allow data to be collected in this way from around twelve to twenty pupils in each subphase, it was decided that three pupils should be interviewed individually in each participating first school form, five in each middle school form and six in each high school form. With this arrangement, sampling numbers would be as shown in Figure P.

FIGURE P: NUMBERS OF PUPILS TO BE INTERVIEWED INDIVIDUALLY

| School subphase | Intended sample sizes (by phase) for individual interviews | | |
|--------------------|--|---------------|-------------|
| | First school | Middle school | High school |
| Lower | 27* | 20 | 18 |
| Upper | 18 | 20 | 12 |
| Total | 45 | 40 | 30 |

* This atypically large sample size is mainly a result of the fact that as many as three different year groups are involved.

6 SUBSIDIARY DATA COLLECTION

After permission was received to undertake fieldwork in the six schools, efforts began to determine the type of contextual data that should be offered in the thesis. Ultimately, the compilation of this material took place in two distinct phases.

6.1 In relation to a predetermined framework

The research reports scrutinised in the literature review were re-examined in order to identify areas that should be addressed when preparing “thick description” for the thesis. The areas, shown in Appendix Four, formed an initial framework for collecting this data. The Headteachers agreeing to take part in the project granted access to a range of documents. These are listed in Appendix Five. Further data was supplied verbally by staff and more was gained by the researcher simply observing the school environments during his time within them. Information relating to Whitley Bay itself was also obtained from many sources, including summaries of census information, local telephone directories, street maps, leaflets from the town’s Tourist Information Centre and a local history book (Hollerton, 1999).

A balance had to be struck between scanning documents for the desired details and remaining receptive to additional, relevant information. Based on the notes derived from the dialogues with staff, those

taken from the paper sources and the researcher's own observations, a document describing each of the schools and identifying common characteristics was prepared. Headteachers were then asked whether or not their organisations were accurately portrayed, and small amendments were made after their comments. Finally, a short passage devoted to Whitley Bay itself was added.

6.2 In response to the informants' data

Since each PhD project is unique, it is unwise to limit contextual data to those areas covered by past work. Guba and Lincoln (1989: 241) even go so far as to indicate that the elements of "thick description" offered by a study may be specific to the individual circumstances of that inquiry. Within the Whitley Bay project, it became apparent that further information should be provided in response to some of the ideas articulated by the youngsters. In particular, the decision was taken at a late stage to collect more data dealing with the public library service and especially three libraries that were used by many informants. To this end, two members of library staff were interviewed, leaflets for the public were obtained and notes were compiled during personal observation of the library environments.

Information was also sought to verify the accuracy of the pupils' data and, where appropriate, in relation to the youngsters' particular circumstances. Where this data relates specifically to the study findings, it is reported alongside the results.

7 SAMPLING ARRANGEMENTS IN PRINCIPAL DATA COLLECTION PHASE: THE INVOLVEMENT OF THE SCHOOLS AND THEIR PUPILS

A five-stage procedure was used to converge on the youngsters to take part in the study.

- a) Where a year group in a certain school consisted of only one form, the investigator had no alternative but to select that form. If, conversely, a year group included several forms, a random choice was made. In instances where a form consisted of pupils from different year groups, this was, wherever possible, excluded from the sampling process.
- b) So as to ascertain those middle and high schoolers who had attended Whitley Bay schools throughout their education and who were thus eligible for sampling, pupils in these phases recorded their previous schools on catalogue cards. These were sorted so that individuals unsuitable for sampling could be identified at an early stage. Any first schooler known to have been previously educated at a school outside Whitley Bay was also immediately ruled out as a potential informant. This information was obtained from the Form Teacher.
- c) Those ineligible for sampling were marked on pupil lists. Random selections were then made from the remaining youngsters. It was also randomly decided which youngsters should participate in the focus groups and which interviewed individually.
- d) The pupils selected attended a preliminary meeting with the researcher. In order to forge some commonality between the two parties, where appropriate the investigator introduced himself as an ex-pupil of the school. After revealing that, from all the pupils in the school, they had been chosen to "help" him, he outlined the purpose of his study, the contribution that would be required of each participant and likely logistical arrangements. The meeting also gave the researcher an opportunity to establish an early rapport with the youngsters, and to enable them to indicate their willingness or otherwise to participate. To

capitalise on any enthusiasm for the project felt by the youngsters, they were asked to sign a pupil consent form at this stage.

- e) At the end of the meeting, each pupil was issued with a letter explaining the project to his or her parents and seeking their approval for their child to take part in the fieldwork.

8 PRINCIPAL DATA COLLECTION

8.1 The pilot phase

Since the researcher believed that any problems associated with the line of questioning prepared for the data collection dialogues would emerge when talking to young children, he opted to pilot his methods in a first school. The organisation selected was the school at which he had taught. This was chosen because it was felt that its familiarity would provide the researcher with confidence when undertaking these important initial investigations. Piloting took place in November 1999 and January 2000.

After the piloting of the focus groups and individual interviews, it was decided that no great changes needed to be made to the line of questioning during the main phase of data collection. The investigator would continue with that which he had already prepared and used in the pilot study but be ready to adopt a flexible stance when the reactions of young children, in particular, indicated that further explanation, or a different tack, was necessary.

8.2 The main phase

8.2.1 Initial responses from pupils

Only in one school (School C-1) did all those originally earmarked as informants actually take part. Elsewhere, attitudes to and enthusiasm for the project varied considerably. No pressure was brought to bear on those approached as only willing individuals were wanted. Indeed, provision was made to allow youngsters to “opt out” of involvement at any of five levels. Where nominated youngsters declined or parental permission slips were not returned, new selections were made from the remaining eligible pupils in the form. Overall, however, around 85% of the pupils initially approached made themselves available.

8.2.2 The data collection sessions

The dialogues within the main phase of data gathering took place between December 1999 and May 2000. In the opening moments of the sessions, participants were given the opportunity to indicate their unwillingness to allow the researcher to use his tape recorder. No-one did so and some were evidently flattered that their conversations with the investigator were considered sufficiently important to be recorded, although the facial expressions of a few older youngsters suggested that at the outset its presence was intimidating. In each case, however, their unease lifted during the course of the dialogue. Where possible, the researcher attempted to follow the headings on the interview schedule so that similar data was collected on each occasion but the technique of “looping”, described by O’Sullivan, Saunders and Rice (1996: 120-21), was also employed. This involved the use of prompts inspired directly by informants’ previous responses. The ploy increased the naturalism of the conversations and ensured that the questions put to the youngsters were genuinely based on their experiences.

After a few dialogues had been conducted, a pattern became evident. In the latter half of most exchanges, when youngsters were feeling less self-conscious, many unique, non-school-related needs were articulated. In the later sessions, after discussion of the term, "information", the investigator gave informants the chance to describe any further "need situations" before closing the conversations. Opportunities were also taken to test emerging theories with new informants, although this practice was largely restricted to middle and high school pupils. Focus group discussions ranged in length from just over thirty minutes to almost an hour, averaging approximately three-quarters of an hour. The duration of the individual interviews was more varied. Some were as brief as twenty minutes, although others took nearly an hour. Most lasted about half an hour.

An unexpected development in the two highest school phases arose when several youngsters produced materials such as assignment briefs or their own work when describing information needs that had resulted from school-related tasks. Some consulted these documents simply to ascertain facts for the researcher, whilst others introduced them as illustrative materials to help supplement their explanations. With the permission of the individuals concerned, the materials shown were photocopied.

8.2.2.1 Locations

The settings for the data collection dialogues were diverse and included ordinary classrooms, computer laboratories, school libraries, small group rooms, dedicated interview rooms and even corridors. In some schools, the same venue was used for both types of session and throughout the fieldwork. No interviews were held in classrooms while the youngsters' lessons were being conducted. In each case, the informant was "transplanted" from his or her normal place at that time and the interview took place in the room or space which the investigator had been allotted.

9 CHARACTERISTICS OF THE PUPIL SAMPLES

188 pupils from fourteen year groups and six schools took part in either the focus groups or the individual interviews. 95 were boys and 93 girls. Each Form Teacher verified that the sample drawn from his or her class embraced a broad range of ability. As stipulated in the eligibility criteria, all those contributing data in the middle and high schools had previously attended other Whitley Bay schools, and all those from whom data was collected in the first schools had at no stage been educated outside the town. The informants included four sets of siblings. In one case the two brothers involved attended the same middle school but in the remaining instances the siblings were dispersed between the first and middle school phases. The sole foreign youngster sampled was Chinese, although she spoke fluent English. Only one black informant took part and he was English.

9.1 The researcher's past contact with the sampled youngsters

At Schools G-1 and D-2, the researcher was well known to many of the pupils. Whilst the youngsters sampled in the former were too young to have been taught by him, three recalled that older siblings had been in his class and some of the oldest children at the first school remembered seeing him in past years. At School D-2, approximately 78% of the participating pupils had previously been taught, in some capacity, by the researcher. Indeed, the majority of informants in Year Five had been members of one of his forms. Two youngsters in total

at Schools C-2 and B-3 also remembered him from their days at first school, when they, too, had attended School G-1.

10 DISCREPANCIES IN NUMBERS OF THOSE ACTUALLY SAMPLED AND THOSE FORECAST

Although the researcher had embarked on the fieldwork with quotas of young people to be sampled in certain year groups, these figures did not always match the numbers of those from whom data was actually collected. Overall, seventy-two youngsters were to be interviewed in the focus groups but ultimately only sixty-seven were involved, as five pupils were absent from school when their group met. Here the focus groups took place as planned but with fewer participants. In one particular case, two youngsters from Year Ten failed to attend, thereby leaving this year group unrepresented in the junior focus group for School B-3.

Whereas fewer pupils than anticipated took part in the focus groups, more individual interviews were staged. According to the original design, 115 were expected but 121 actually took place. The increase was largely due to the fact that some youngsters, originally intended to participate in the focus groups but absent when their group met, had returned to school whilst fieldwork there was continuing and the individual interviews offered the researcher a further opportunity to collect data from them. In addition, some pupils returned their parental consent forms so late that reserves had already been nominated and letters despatched. The investigator was unwilling to deny himself the chance to talk to these youngsters simply because the quota would now be exceeded. In some schools and some year groups, however, there was once more a shortfall. This was the result of long-term pupil absence and the unwillingness of some schools to begin anew the process of nominating reserves and seeking parental permission.

PART IV:
THE FIELDWORK - SETTINGS AND RESULTS OF FIRST-ORDER SYNTHESIS

- Chapter Fourteen - Context for the Fieldwork
- Chapter Fifteen - Young People and the Term, “Information”
- Chapter Sixteen - Young People’s Information Needs
- Chapter Seventeen - Young People’s Information-seeking

CHAPTER FOURTEEN

CONTEXT FOR THE FIELDWORK

This chapter supplies background description of the settings in which the fieldwork took place. It begins by examining the case study town itself and reporting on the local library service. General comments that apply broadly to all six participating schools are made before the distinct characteristics of each are outlined, especially in terms of their Information Skills teaching, libraries and IT provision.

1 THE TOWN OF WHITLEY BAY

Some ten miles from the city of Newcastle upon Tyne, Whitley Bay is a small town on England's north-east coast. It is located in the metropolitan borough of North Tyneside, which itself lies within the county of Tyne and Wear. If it is considered to embrace the wards of Monkseaton, St. Mary's, Seatonville and Whitley Bay itself, 1997 statistics (Tyne and Wear Research and Information sheet, 1997) indicate that the town's population is around 39,000. Ethnic minorities formed less than 2.5% of the population in each of the wards at the time of the 1991 Census (Tyne and Wear Research and Intelligence Unit, 1993: 13). One of North Tyneside's more affluent areas, Whitley Bay enjoys low unemployment; the figure was less than 4.5% in all but one of the wards throughout the first half of 2000 (North Tyneside Council, 2000: table 3) - the period when most of the data collection for the project took place - and the levels of those out of work in St. Mary's and Monkseaton were the lowest in the borough. The largely professional nature of the inhabitants is mirrored by the fact that, according to 1991 Census figures (Tyne and Wear Research and Intelligence Unit, 1993: 15), in each of the wards most of the seventeen-year-olds were involved in full-time education. In St. Mary's and Monkseaton, the figures were as high as seventy-five and eighty-three percent respectively and, again, these levels were the most impressive in North Tyneside.

With its sandy beach, Whitley Bay is popular among day-trippers and holiday-makers, and much income is derived from tourism. It also serves as a dormitory town for many inhabitants who commute to Newcastle. Residents may make use of a variety of information providers. Several shops, including supermarkets and newsagents, sell books and maps, and the town includes a few small, dedicated bookshops. A Citizens' Advice Bureau is available for general inquiries. Two branch libraries are within easy reach of the town centre. The borough's Central Library, at North Shields, is only three and a half miles away by road from Whitley Bay Library, and is just three stops from the case study town on the local train service.

2 THE PUBLIC LIBRARY SERVICE IN NORTH TYNESIDE

2.1 Overall comments

North Tyneside offers fifteen public libraries, plus a mobile library that visits the housebound, residential homes and sheltered housing units. The hours when they are open vary markedly from library to library, ranging from 45.5 hours per week at North Shields and Wallsend to only ten at one of the smaller branches. Just one library provides public access to the Internet. This is by means of a single, coin-in-the-slot machine in the Central Library. Visits to North Tyneside libraries by school parties are common among pupils of primary age. For younger users, nine libraries stage half-hour storytime sessions for the under fives.

2.1.1 Stock for young users

The children's collection within each library is stocked and maintained by the Children and Young People's Service. Junior books are catalogued in accordance with a modified version of a schools' edition of the Dewey scheme, and no classification number is longer than six digits. Each children's collection consists of lending stock, which forms the major part, and a reference only section. The main bibliographic aid available in all the libraries is a "children's subject index" provided in a red, comb-bound book. This lists over 1500 topics and their classification numbers. All North Tyneside libraries include small teenage collections which consist predominantly of fiction. The small amount of non-fiction is mainly concerned with sport and health/lifestyle issues, such as drugs and alcohol. None of these books is study-oriented. When youngsters reach the age of fourteen they are entitled to an adult ticket and may borrow more audio-visual items. Nevertheless, even holders of a children's ticket can take out stock from the adult collection. The only materials they are forbidden to borrow are those specifically labelled "adults only".

2.1.2 Stock for adults

It was not until 2000 that all libraries within the borough afforded public access via computer to the catalogue. At the time of the fieldwork, a microfiche version was available to adults. The other major bibliographic tool offered in all the libraries is a yellow, bound "adults' subject index", consisting of 330 pages listing alphabetically a series of topics and their classification numbers. Like the children's stock, the adult collection in each library comprises two separate parts, allocated to books for lending and reference respectively. A "requests" service for specific titles is also provided by all North Tyneside libraries.

The Central Library and the two branches that may be regarded as local to Whitley Bay are described individually below.

2.2 North Tyneside Central Library

Situated just off a main road and near an indoor shopping centre, the Central Library is the borough's largest and discharges many functions for the service as a whole. It is open every day of the week apart from Sunday but access on Wednesdays is limited to the morning. The ground floor of the building, which was opened in February 1975, accommodates the children's library, teenage stock, newspapers/magazines, adult fiction and AV recordings, whilst the first floor is taken up by an extensive non-fiction collection for adults.

Within the children's non-fiction stock, the beginning of each hundred sequence is marked by an inlay card within a transparent video cassette box inserted amidst the books. The overall subject is not stated and there are no shelf labels drawing attention to the whereabouts of particular topics. Nevertheless, the sequence is clear, largely because much of it follows the wall around the edge of the room. In the adult non-fiction collection, the positions of particular subjects are shown with large yellow labels. Many of the shelves are of a more standalone type with aisles between them and the sequence is harder to follow than in the children's department.

2.3 Whitley Bay Library

Despite being much smaller than the Central Library, that at Whitley Bay is North Tyneside's second largest. Open five days of the week, it is closed on Wednesday and Sunday. Whitley Bay Library is pleasantly situated on a tree-lined, flower-bedded green near the sea. The single-storey building itself, however, is in a poor state of repair and, on the day that it was visited, four buckets were being used to catch water from a leaking roof. The present building was opened in October 1966 but plans are in progress to move the library to a new site in the coming months. As with the Central Library, there are sections for children's stock, teenage books, AV recordings, newspapers/magazines and an adult collection.

Children's non-fiction is again demarcated in hundreds but these divisions are augmented by signs attached to the shelves showing certain classification numbers and the subjects they represent, e.g. "J745.5 Crafts". Particular numbers are easily found within the sequence, as, once more, the stock snakes around the wall in one unbroken run. Although the teenage collection is small, some magazines, as well as books, are offered. Many topics covered by the adult non-fiction collection are again highlighted by yellow signs but, as in the Central Library, the separation of shelves by aisles renders it harder to follow the sequence.

2.4 Monkseaton Library

Located at the end of a block of buildings in Monkseaton's main street, the library could, from outside, easily be mistaken for a corner shop. It occupies the ground floor of a two-storey building and is much smaller than Whitley Bay Library. Opening hours are restricted to all day Tuesday and Friday, Thursday morning and Saturday afternoon. Adjacent to the sequence of children's non-fiction for lending are two shelves of junior reference material consisting mainly of general and subject-specific encyclopedias. A useful bibliographic aid is a file in which nine broad "homework subjects" are listed. More specific topics together with their classification numbers are cited under each of the overall headings. "People who help us", for example, embraces thirteen subcategories, including "J363.2 Police force". Like all libraries in the borough, that at Monkseaton offers a limited teenage section. There is no AV recordings collection. A few newspapers and popular magazines are available. Much of the space within the cramped interior is taken up by adult fiction, as is typical in the smaller branches, and a less extensive adult non-fiction section runs round the walls of an alcove in an easily followed sequence. Certain topics are again marked by large, yellow labels. The reference stock, which adjoins the lending section, is composed mainly of dictionaries, encyclopedias, yearbooks and telephone directories.

3 THE SCHOOLS SAMPLED

3.1 General characteristics

In their entirety, the three types of school represented in the study educate youngsters from three to eighteen. All six participating schools are open to boys and girls and are comprehensive, admitting youngsters regardless of ability, race or religion. They are all funded by the local education authority and subject to its guidance. More broadly, all must follow the National Curriculum. Each was inspected by OFSTED in the latter half of the 1990s and emerged with credit. Recurring themes in the reports include substantial parental support, high levels of pupil attendance, consistently good behaviour, few exclusions and praiseworthy academic standards. Indeed, in each school, test and examination results usually exceed the national average. In terms of their

locations, none of the six schools is more than a mile and a half from a public library, and both local libraries can be reached in minutes by car from all the schools.

Links between the schools are strong, with Whitley Bay Headteachers and coordinators of each National Curriculum subject meeting regularly to share information and ensure continuity of practice. Furthermore, where many pupils from one school go on to another within the town at the next phase, discussions involving staff from both schools take place in order to enable the youngsters to make as seamless a transfer as possible.

Clear patterns are apparent in the teaching of Information Skills across the schools. Youngsters in each institution are given the opportunity to develop and practise, in the course of their subject-oriented work, skills associated with finding and using information. At first school level this is often done through the production of assignments relating to a class topic, whilst GCSE pupils perform their skills within the context of assessed coursework. In all phases, specific skills may also be taught in more dedicated sessions. Since many Information Skills are now embraced within the National Literacy Strategy, some may be covered, at lower levels, during the "Literacy Hour", whilst, at higher phases, others may be addressed in library lessons or study skills sessions.

Cross-phase patterns also emerge in terms of IT. All six schools have already developed or are in the process of introducing a designated computer room. Whilst the teaching of skills associated with particular software is sometimes undertaken in sessions devoted specifically to IT or as part of library induction programmes in schools at the highest phases, the National Curriculum's requirement that all its subjects should incorporate the use of IT means that, in first, middle and high schools alike, IT, including CD-ROM and the Internet, is also employed in the delivery of other curriculum areas.

Several information services are available for use by each Whitley Bay school. These include the North Tyneside's Multicultural Centre and, if a subscription fee is paid, the Educational Technology Centre and the Children and Young People's [Library] Service. The third organisation offers a variety of facilities, including a bookshop, advice to schools and a loans service through which subscribers can borrow "themed project packs" (collections of items devoted to particular topics) and materials on a range of subjects.

The following paragraphs give more specific details about the six schools serving as fieldwork centres.

3.2 The first schools

3.2.1 School A-1

3.2.1.1 General information

With thirteen forms and fifteen full-time equivalent teachers, School A-1 is one of the two largest first schools in North Tyneside. Some 362 children are on roll, sixty-six of whom were admitted into the three Reception forms at the beginning of the academic year. The numbers entering each September fluctuate but the Governing Body has set an admission limit of seventy-five. Form sizes average less than thirty throughout the school. Council statistics (North Tyneside Council, 1999) indicate that between a quarter and a third of pupils receive free school meals, a figure more than double that pertaining to any other first or middle school involved in the study but broadly in line with the level for the borough as a whole. Around one in three pupils lives beyond the immediate area, and there are significant levels of parental unemployment. Located in the south-

west of Whitley Bay, near a well established housing estate and less than half a mile away from the nearest public library, the premises neighbour those of a middle school and the two organisations share the use of a sports field. Although the actual building is over fifty years old, the school itself came into existence only in the early 1990s when two others were closed. OFSTED's most recent visit to School A-1 was in June 1999, the month during which contextual data was starting to be collected by the researcher. In their report, the inspectors found that the school served its pupils effectively and that its strengths easily outweighed its weaknesses.

3.2.1.2 Teaching of Information Skills

Pupils of all ages make regular visits to the school library and their Information Skills develop greatly as they move through the school. OFSTED praised the interest in books shown by the under fives and their careful handling of them. Moreover, Reception children were found to be able to distinguish between fiction and non-fiction materials. Older pupils were seen to make suitable use of contents lists and indexes in books and to find texts in the school library through use of a subject index. Interactive displays around the school also promote Information Skills. One, for example, was observed in which questions posed could be answered using a range of relevant books available nearby. The curriculum programmes for each year group suggest that the majority of significant Information Skills are taught during keystage two, when pupils are aged between seven and nine, although, according to the Library Coordinator (L/A-1/II/12), such skills are addressed throughout the school by teachers during the "Literacy Hour" and are further practised in lessons devoted to theme work. Older pupils are encouraged to find out more about the subject in question independently, at home.

3.2.1.3 The school library

The prospectus draws attention to the "spacious, purpose-built library that is well resourced with up to date non-fiction and fiction books, videos and story tapes". The 1999 OFSTED report is equally positive, identifying the library as one of the school's strengths. OFSTED considered library facilities to be excellent and the area itself comfortable, welcoming and well equipped, with an impressive ratio of books to pupils. Situated at one end of the building, it is administered by a Class Teacher also responsible for Personal and Social Education and implementation of the National Literacy Strategy. It is organised according to a simplified Dewey system and a traditional card catalogue is provided. Non-fiction categories are clearly indicated with large subject headings and the direction of the classification numbers is, in places, shown via arrows. Recently, separate rooms have been introduced to house fiction and non-fiction. Although each form is expected to visit the library regularly, the pressures of the Literacy and Numeracy Hours have reduced the amount of time whole forms spend in the library. In the past, the school has operated a library club, in which interested pupils could take home books from the collection but this has been suspended because of staffing problems. Use of the public library has formed one of the foci in the school's programme of workshops and guidance sheets aimed at demonstrating to parents how children can learn outside school through everyday experiences.

3.2.1.4 IT provision

School A-1 has improved its delivery of IT in recent years. When first inspected by OFSTED, in March 1996, the school was unable to provide each form with its own computer and the available hardware was believed by the inspectors to be too old. The most recent inspection report drew attention to enhanced resource provision in the subject and higher levels of pupil attainment than three years previously. Still, a lack of confidence when using the keyboard was detected in many pupils, and children were found to have insufficient opportunities to work with computers, which were often left idle during the school day. Whilst the school offers some information-seeking activities involving CD-ROM encyclopedias, in general inadequate use was considered to be made of IT to support other subjects. At the time of the inspection, the school was making plans to develop a computer suite. This is to be based in the library, which has recently been redeveloped for the purpose. Benches for ten new machines have been introduced, and existing computers, some of which are old and lack hard discs, will remain assigned to individual forms. The development of a computer room has also coincided with connection to the National Grid for Learning and, eventually, the school hopes to offer an automated library catalogue. At the time of the fieldwork, School A-1 was the sole first school to accommodate IT and library facilities within the same room.

3.2.2 School C-1

3.2.2.1 General information

301 pupils are on roll at School C-1, and twelve full-time equivalent teachers employed. In a typical year, around sixty new Reception children are admitted. The school is located in a residential suburb of Whitley Bay, barely half a mile from the nearest public library, and most of the intake is drawn from the private housing estates around the building. Almost all pupils are white and, according to council figures (North Tyneside Council, 1999), only eight percent are entitled to free school meals. On average, form sizes are over thirty. Sound educational standards are attained, and a 1998 OFSTED inspection found levels of achievement across the curriculum to be either in line with or in advance of those expected nationally. The report praised the positive attitudes of pupils to learning, their polite and courteous manners and a quality of teaching which, in the sessions observed, was always satisfactory or better.

3.2.2.2 Teaching of Information Skills

Information Skills, which have a high profile at the school, are taught in accordance with an agreed policy, and a structured plan stipulates the aspects to be covered in Nursery/Reception and the two keystages. Wherever possible, teachers attempt to integrate the skills across all subject areas. The OFSTED team applauded the manner in which independent research skills were fostered, drawing particular attention to how keystone one pupils were aware of the way in which books are organised in a library, how they understood the purposes of indexes and contents tables within books and how they could extract important facts from texts. The inspectors further noted that, by the time children left the school, they were able to use dictionaries and thesauri confidently and were effective in employing the Dewey system to find information they required. Nevertheless, it was adjudged that pupils were not given enough opportunity to perform their Information Skills in appropriate contexts.

3.2.2.3 The school library

The detailed library policy statement addresses such matters as the aims of the library, its contribution to the school, the resources within it, funding, its organisation and use, provision for monitoring and evaluation, areas for development and the role of the Library Coordinator. Airy, adorned with colourful displays and with seating for fifteen children, the library is the responsibility of the Nursery teacher, who takes each form within the school for “refresher” library sessions each September. Since it is based near the main entrance to the school, the library is easily accessible to all pupils. Described by OFSTED as well stocked and well organised, with books in good condition, it incorporates a wide range of materials, including 3,400 non-fiction books and 425 AV materials. Only the library’s encyclopedias are unavailable for lending. Two periods per week are allocated for use of the library by each form, although children in Years Three and Four are also permitted to visit the library individually or in pairs when it is not occupied by a class. In the months immediately before the fieldwork, the Headteacher (HT/C-1/II/11) had detected a reduction in the number of library visits by whole forms. In particular, very few took place in the mornings because teachers were predominantly concerned with the administration of the Literacy and Numeracy Hours. The library’s non-fiction collection is classified according to a simplified version of the Dewey system, and each subject area is represented by a number of up to four digits. When seeking information, pupils are asked to consult the subject index, which lists the classification numbers of some 431 topics. No catalogue of non-fiction stock is available.

3.2.2.4 IT provision

At the time of data collection, computers were allocated to forms and all but one of the classes had access to a hard disc machine equipped with “Windows”. By the end of their time at the school, pupils have received training and practice in the use of CD-ROM, among other applications, to retrieve information on a range of topics. Attempts were being made during the period of the fieldwork to raise the profile of IT within the school. Indeed, the school development plan for 1999/2000 stipulated that priorities included the introduction of a computer room within the building. At present, only one machine in the school is connected to the National Grid for Learning.

3.2.3 School G-1

3.2.3.1 General information

With 263 pupils on roll, 11.6 full-time equivalent teachers and an intake into Reception of around forty pupils in recent years, School G-1 is the smallest of the three first schools participating in the study. It is situated on the northern edge of the town and is bordered by a housing estate and arable fields. The former supplies many of the children who attend the school, although some come from the outlying area. According to council figures (North Tyneside Council, 1999), just over eleven percent are entitled to free school meals and only two pupils speak English as a foreign language. Although form sizes average around thirty, the school nevertheless has a reputation for academic excellence, its keystage one SATs results being consistently among the best in the borough. The report of OFSTED inspectors, who visited the school in 1998, drew attention to good relationships between staff and pupils, a high quality of learning resources and, again, teaching that was always satisfactory or better.

3.2.3.2 Teaching of Information Skills

The reading ages of the vast majority of the children are far in advance of their chronological ages and the pupils' Information Skills were praised by the inspection team, who especially acknowledged the youngsters' abilities to use indexes and glossaries by the time they were seven and the fact that, by the end of their time at the school, they were able to extract information from non-fiction works. Pupils are encouraged to use the local public library, even though the closest, at Monkseaton, is over a mile away from the school.

3.2.3.3 The school library

The school library is an attractive, open room located in a wing of the building used mainly by Year Four children. Highly traditional, it is the archetypal "room full of books". No AV materials are stocked or computer facilities provided. In recent years, several different members of staff have been responsible for the library. It is now administered by the Resources Manager, who is also the Nursery teacher. Virtually all library bookstock was destroyed by a flood during Christmas 1995 and, after fund-raising events and donations from local firms and parents, the collection was rebuilt. Consequently, the existing stock is relatively new and attractive. The OFSTED inspectors praised the "good range" of non-fiction books, and the Headteacher (HT/G-1/II/5) is satisfied that the new collection is now at least equal in size to that which it replaced. The teacher responsible for the library (L/G-1/II/6) estimates that there are now approximately 8,000 titles in the collection. Non-fiction books are organised in accordance with a simplified Dewey system, based on twenty-four subdivisions, each of which is represented by a three-digit reference number and a coloured symbol. No library catalogue is provided but pupils are trained to consult the "library guide" posted on one of the walls. This lists the subdivisions, together with their symbols, in numerical order. Each form has a weekly timetabled library period, during which the children may borrow books. Although, when reading for pleasure, pupils are urged to take out fiction books, as the 1998 OFSTED inspection report noted several youngsters appear to prefer reading non-fiction. Items are issued to the youngest children only when an adult - usually the Class Teacher - is present but older pupils are permitted to use the library by themselves. At the discretion of their teachers, the eight- to nine-year-olds may also be authorised to visit the library during breaks and lunch times.

3.2.3.4 IT provision

An innovation, introduced at the beginning of the academic year in which the fieldwork was staged, involved the assembly of all the school's computers in a newly-designated IT room. The machines are not networked, however. Moreover, since the hardware varies in age and the same software packages cannot be run on all the computers, it is impossible for a whole class to work on one particular IT task simultaneously. Each form is timetabled for one lesson a week in the room. Most sessions involve a system of half-class cycles, in which some children tackle IT work, whilst the rest undertake more traditional, and often unrelated, activities. Generally, the half-class IT lessons are devoted to specific computer skills, such as those associated with word processing, although there is scope for a few children to conduct information retrieval on a certain topic, using either the five machines with CD-ROM capability or the two CDi systems. The school entertains hopes of soon offering pupil access to the National Grid for Learning but progress is hindered by the lack of machines of the required standard.

3.3 The middle schools

3.3.1 School C-2

3.3.1.1 General information

School C-2 is the largest middle school in the borough and, in size, lies within the top ten percent of schools of this type in metropolitan areas. Thirty teachers are employed and there are 667 pupils on roll. Each year, around 160 Year Five youngsters are admitted. Located in the northern half of Whitley Bay and less than a mile from the nearest public library, the school draws many of its pupils from three schools (B-1, F-1 and H-1), although a growing number come from schools beyond the traditional catchment area, including School G-1. Most pupils live in privately owned houses. Only four percent are entitled to free school meals and just one percent is from ethnic minority groups. The school enjoys a fine reputation and its SATs results place it in the top twenty-five percent of schools nationally. Visiting the school in 1996, an OFSTED inspection team praised the positive atmosphere within the school, excellent attitudes to learning and very good pupil behaviour.

3.3.1.2 Teaching of Information Skills

The IT Coordinator (IT/C-2/II/8) admits that, in recent months, the teaching of Information Skills has suffered as teachers have become preoccupied with laying firm foundations in basic literacy. Many Information Skills are now incorporated into the National Literacy Strategy and staff have tended to cover the key areas associated with reading and writing, whilst more peripheral aspects, such as Information Skills, have not received comparable attention. It is largely left to individual teachers to arrange specific Information Skills sessions in the library.

3.3.1.3 The school library

OFSTED described the library as "mediocre with many books that are old but in good condition". Since the inspection much of the aged stock has been removed and there are now fewer, but more modern, books than in the past. A long, first floor room, positioned between the two wings of the main building, the library is frequently used as a thoroughfare by staff moving from one part of the school to the other. It is administered by a teacher also in charge of Modern Foreign Languages. She is aided by pupil volunteers, and a former member of staff assists in cataloguing. Physically, the library is easily accessible to most pupils, except to Year Five youngsters, who are accommodated in their own block. The central stock is supplemented with year group libraries and loans from the Children and Young People's [Library] Service. Owing to a recent expansion in pupil numbers, the library doubles as a teaching room. The consequent need to add more desks and chairs, coupled with the introduction of fourteen networked computers, has led to a reduction in the shelf space. Away from the computers, there is seating for thirty pupils in the main area of the library. A card-based classified catalogue is provided and the collection is arranged according to a system described by the teacher responsible (L/C-2/II/9) as "quasi-Dewey". As the room is used so heavily for whole class lessons, there is little opportunity for independent information-seeking in the library during teaching hours and access for individual pupils is generally restricted to lunch times. Each year group is allocated a half-hour slot during this period each week.

3.3.1.4 IT provision

The school has enhanced its IT teaching after OFSTED identified the need to improve “pupils’ competence with Information Technology and extend its use and application across the curriculum”. In addition to the workstations in the library, an existing classroom was converted into a specialist computer room in 1995. By February 2000, it was offering thirty-six networked machines, although fourteen of these were old, with no hard disc capability. The IT Coordinator (IT/C-2/II/8) hoped to replace these with new computers over the next two years and, indeed, new hardware was arriving in the suite whilst fieldwork was taking place. Younger pupils are allocated a weekly timetabled IT period, whilst the skills of their older fellows are developed mainly through the teaching of other curriculum subjects that incorporate IT use. Skills addressed in the specifically IT sessions typically relate to word processing, desk top publishing, graphics and statistics. Each subject department purchased a number of CD-ROM titles some years ago but little use is made of them, largely because they can be accessed only on a single machine at any one time, and the notion of individual, independent research runs contrary to the ethos of the school, which favours whole-class teaching. The fact that the IT room lacks continuous supervision also militates against extensive use of CD-ROM resources. The IT Coordinator (IT/C-2/II/8) divides his time between computers and music, for which he is also responsible, and no technician is employed. By Easter 1999, the school was making arrangements for connection to the National Grid for Learning but a burglary that resulted in the theft of six machines thwarted these plans.

3.3.2 School D-2

3.3.2.1 General information

Located in grounds adjoining School G-1, School D-2 is physically connected to its neighbour and it is possible to walk from one organisation into the other through the building. The majority of the first school’s pupils go on to School D-2 but a significant minority of the latter’s intake comes from outside Whitley Bay. Most pupils live in owner-occupied houses and many parents are employed in the service sector. According to council figures (North Tyneside Council, 1999), only five percent of pupils are entitled to free school meals. The second smallest middle school within North Tyneside, with just thirteen teachers, School D-2 is currently full to capacity with 259 pupils on roll. The numbers admitted each September have risen in recent years and, in September 1998, seventy-five pupils entered Year Five. SATs results indicate that incoming youngsters’ levels of attainment are high and standards of achievement within the school are also above the national average. A 1997 OFSTED inspection particularly highlighted good relationships between teachers and pupils, a happy and secure atmosphere within the building and a quality of teaching which, in most subjects, was satisfactory and often better.

3.3.2.2 Teaching of Information Skills

Information Skills are addressed in the schemes of work for a variety of curriculum subjects. Examination of those for Language reveals that many basic Information and Library Skills are taught during the youngsters’ first term at the school in Year Five, when, as part of their weekly “library lesson”, themes include the concepts of fiction and non-fiction, alphabetical ordering, use of the Dewey classification scheme and the library catalogue and the exploitation of reference books, such as encyclopedias, dictionaries and thesauri.

3.3.2.3 The school library

The library, which is the subject of a brief policy statement, is situated just off the main school corridor and both rooms which adjoin it are regular classrooms. The library itself is, in fact, a converted classroom. Much of the space within is consumed by shelving and soft, easy chairs. Supervised by the Literacy Coordinator, the library has no specialist librarian. Although the essential clerical duties are discharged by parental and pupil assistants, OFSTED considered that the lack of qualified support restricted use of the library since books were issued mainly during set library periods and access was otherwise available only when an adult was present. The inspectors were also critical of the shortage of “quality non-fiction books”. These comments may still be made today. The library remains dependent on volunteers and the bookstock is small. Non-fiction materials, all of which are print-based, are classified according to a simplified version of Dewey, in which classification numbers are limited to five or fewer digits. The main tools available are a card catalogue, with entries arranged in class order, and an alphabetical subject index, again in card format. Despite each form being allocated a weekly library period, OFSTED found the younger pupils, in particular, to be lacking in understanding of the classification scheme and catalogue.

3.3.2.4 IT provision

At the time of the inspection, IT was taught through other curriculum subjects and no year group received dedicated, timetabled IT sessions. OFSTED was unimpressed by the teaching of IT, arguing that, with many computers lying idle for long periods, resources were not exploited satisfactorily either to deliver the National Curriculum for IT or to enhance learning in other subjects. The pupil/machine ratio of seventeen to one was judged to be poor and the fact that the computers were scattered around the building prevented full-class use and inhibited the systematic teaching of IT skills. Much progress has been made since OFSTED’s report. More hardware has been purchased and the school now has a designated computer room, equipped with fourteen networked machines, all of which offer Internet access. Year Five youngsters are provided with a dedicated IT lesson each week, and teaching revolves around a series of modules designed to equip the pupils with “core skills” which are extended via the cross-curricular approach that still pertains further up the school. When specific topics are covered in lessons such as Geography and Science, pupils often receive an “Internet session”, in which they search the Web for information on the area in question. The CD-ROMs available include general encyclopedias and more subject-oriented software.

3.4 The high school

3.4.1 School B-3

3.4.1.1 General information

With 1264 pupils and seventy-four full-time equivalent teaching staff, School B-3 is one of North Tyneside’s two largest high schools. Pupil numbers have expanded in recent years and more youngsters are remaining beyond the age of compulsory education. With a twelve-form entry system, around three hundred youngsters are admitted each September. Located in grounds adjoining School C-2, the high school draws most of its pupils from the surrounding estates and virtually all those leaving the neighbouring middle school at the end of Year Eight go on to School B-3. Nevertheless, increasing numbers come from beyond the traditional catchment area and more pupils previously educated at School D-2 are now continuing their education at School B-3 than

in the past. On entering the school, many youngsters are achieving levels of attainment above the national average and examination results for the school at both GCSE and “A” Level are similarly in advance of national expectations. Only sixteen pupils come from homes where English is not the first language and just six percent are entitled to free school meals. An OFSTED inspection team visiting the school in February 1997 praised the excellence of the examination results, although a “rather didactic teaching style” was observed.

3.4.1.2 Library and IT provision

OFSTED drew attention to a poor school library, which had been targeted for action before the inspection, and recommended that one of the immediate priorities should be to “develop the library... to offer enhanced provision for books, computer access, study facilities, catalogues”. The bookstock was considered too small and the CD-ROM software offered insufficiently wide-ranging, as only limited resources were provided in some subjects, thereby hampering the delivery of IT across the curriculum. Outside the library, IT provision was praised. The report especially highlighted “three well appointed rooms with a range of modern machines and peripherals” and a good pupil/machine ratio of approximately nine to one.

The Headteacher acted promptly in response to the inspectors’ criticisms. October 1997 saw the opening of a new block that included a modern library. It is run by a full-time Librarian, who commands the status of a Head of Department, and a part-time Library Assistant. The former, an active member of the Library Association, plays a key role in the teaching of Information Skills within the school, liaising with subject departments in order to ensure that they are taught within project work and each year providing the new Year Nine pupils with a six week course in study skills. This is adapted from the PLUS model of Information Skills teaching (Herring, 1996: 18-19).

The library now holds 4,560 books and a figure of approximately 10,000 titles has been targeted for the next three or four years. Little bookstock from the original library remains. Non-fiction is classified according to a school-specific version of the Dewey system, and an OPAC with full search facilities is offered for pupil use. In September 1999, the library began lending “talking books” and video cassettes. Ten networked computers, all with CD-ROM and Internet capability, are also located in the library. The room is open throughout the school day and, although up to three periods out of the daily five may be taken up by class bookings, even when it is being used by a teaching group individual pupils are allowed entry. Youngsters are encouraged to help in the administration of the library and their work in this area is recognised through a three-level award scheme pioneered by the Librarian. The school borrows some materials from the Children and Young People’s [Library] Service, primarily to support Year Nine projects. Limited use is made of it in the upper years, however, as the books offered are less suitable for older pupils.

CHAPTER FIFTEEN
YOUNG PEOPLE AND THE TERM, "INFORMATION"

This chapter examines the findings of the project in terms of the six elements within that part of the study devoted to young people's understanding of the term, "information". Separate sections are allocated to the informants' reading and recognition of the word, the ways in which they demonstrated their comprehension of it through drawing pictures, the contexts in which they employed the term in their own speech, the explicit definitions that they offered, the associations that informants made with the word and the sources and means of gaining information that they isolated. Patterns detected in data across these elements are reported and a model of the information life cycle, incorporating ideas emerging in relation to all the elements, is postulated. The final part of the chapter provides a summary of the main issues that have been identified.

1 READING AND RECOGNITION OF THE WORD

1.1 Types of behaviour

When the first schoolers were shown the term, "information", and asked if they recognised it, their responses fell into one of the following categories.

- a) The word was read correctly on sight. It was understood at once, with the youngster either making an immediate comment that indicated comprehension or, at the prompting of the researcher, including the term in an appropriate sentence.
- b) Although the term was not recognised immediately, an attempt was made to read it. In doing so, the child made one or more mistakes. Two of the errors made - those of Josie (Y2/A-1/II/110) and Mary (Y3/G-1/II/3) - were identical. In all cases after the term had been read correctly to the youngster, he or she was able to demonstrate an understanding of what it involved through one of the two behaviours described in (a) above.
- c) Again, the youngster tried to read the word even though it was not recognised on sight. Once more, a mistake was made. Unlike youngsters displaying type (b) behaviour, however, here the child was unable to express an understanding of the term.
- d) No real attempt could be made to read the word but, on hearing it, the youngster showed an awareness of its meaning. The only child in this category, Karen (Y1/G-1/II/7), acknowledged the word, after hearing it read, with a confirmatory, "Ah, yeah!" and was later able to provide a definition even though she had been unable initially even to start reading the word.
- e) Once more, no convincing attempt could be made to read the term but here no understanding of it was demonstrated either. A few youngsters recognised the initial letter but soon abandoned their efforts. All those in this category claimed, when it was read to them, that the word was entirely new. If they had heard it before, they had forgotten and it had carried no meaning for them. When the concept of information was explained, marked differences emerged in the participants' understanding. For some, comprehension remained elusive, while others could identify either sources that provided information or ways in which information could be gained. The responses of youngsters in the latter group who were interviewed individually are shown in Figure Q, alongside the questions eliciting the data. Although the questions were intended to be mildly impersonal and not address the child's own situation specifically, the participants

often replied with statements of how they had “found out” in certain information encounters. Nevertheless, Philippa, Glenn and Maggie made attempts to generalise and offer advice that could be applied to anyone wishing to “find out”. All but one of the individual interviewees unfamiliar with the term, “information”, but capable of comprehending the idea of “finding out” were unable to identify what they might find out about. The exceptional child, Beverley (R/A-1/II/109), described how one of the things she might want to find out about was “where we’re going on holiday”. For the informants here, the task of naming areas in relation to which information might be sought proved more demanding than that of describing how information might be obtained.

A different pattern emerged in the focus groups, as many less aware youngsters benefited from the clues and insights provided by the more knowledgeable, and usually older, colleagues with whom they interacted. Such informants clearly increased their understanding of the concept in the course of the session.

FIGURE Q: INFORMATION PROVIDERS AND METHODS OF OBTAINING INFORMATION QUOTED BY YOUNGSTERS UNABLE TO READ TERM, “INFORMATION”, AND SHOWING NO INITIAL UNDERSTANDING OF IT

| Informant | Researcher’s question | Informant’s response |
|----------------------------|---|---|
| Philippa (R/A-1/II/108) | “If I wanted to find out about something, what could I do?” | “Go to a museum” |
| Beverley (R/A-1/II/109) | “How might we find out things?” | “I’d just ask my Mum and Dad” |
| Melissa (R/A-1/II/121) | “How can we find out about dinosaurs?” | “I’ve got three dinosaur books” |
| Anna (R/C-1/II/62) | “How might we try and learn more about dinosaurs?” | “My Mum shows me them in a book” |
| Miranda (R/G-1/II/11) | “Where might we find things out from?” | “Ask my teacher... My Mum... and my Nana” |
| Glenn (Y1/A-1/II/113) | “What can we use to find out from?” | “People can tell us... Mum and Dad could help us” |
| Maggie (Y1/A-1/II/119) | “If I wanted to find out about things, what could I do?” | “Use your imagination” and “go to the Sea Life Centre because there’s fish, flat fish and sharks. I’ve been there.” |

1.2 Prevalence of the types

Figure R indicates which youngsters displayed which of the behaviours outlined in the types above. Letters are used to show the correspondence of the boxes within the table to the types. Only those interviewed one-to-one are listed, as it proved difficult to gauge individual abilities in focus groups, in which children with limited skill in reading the term and a low level of understanding could take their lead from more capable members of

FIGURE R: FIRST SCHOOLERS’ ABILITIES TO READ AND UNDERSTAND TERM, “INFORMATION”

| | | Ability to understand word | |
|----------------------|---------------------------------|--|--|
| Skill | Success | Recognised word | Did not understand word |
| Ability to read word | Read word correctly | June (Y1/C-1/II/57) a Gavin (Y1/G-1/II/24) Edgar (Y2/A-1/II/111) Barry (Y2/A-1/II/112) Tony (Y2/C-1/II/54) Penelope (Y2/C-1/II/55) Don (Y2/G-1/II/4) Francesca (Y2/G-1/II/5) Derek (Y2/G-1/II/6) Olivia (Y3/A-1/II/114) Curtis (Y3/A-1/II/115) Kenneth (Y3/C-1/II/48) Lynne (Y3/C-1/II/49) Joe (Y3/C-1/II/50) Austin (Y3/G-1/II/23) Dominic (Y4/A-1/II/116) Sasha (Y4/A-1/II/117) Paula (Y4/A-1/II/118) Wes (Y4/C-1/II/51) Joan (Y4/C-1/II/52) Wendy (Y4/C-1/II/53) Diane (Y4/G-1/II/1) Christian (Y4/G-1/II/2) Barbara (Y4/G-1/II/22) | |
| | Error(s) made when reading word | Rupert (Y1/C-1/II/59) b Gerald (Y1/G-1/II/8) Josie (Y2/A-1/II/110) Mary (Y3/G-1/II/3) | Meredith (Y2/C-1/II/56) c |
| | Unable to read word | Karen (Y1/G-1/II/7) d | Ryan (R/A-1/II/120) e Steven (R/C-1/II/60) Leonie (R/C-1/II/61) Raymond (R/G-1/II/10) Sean (R/G-1/II/25) Gaynor (Y1/C-1/II/58) Natasha (Y1/G-1/II/9) Philippa (R/A-1/II/108) e Beverley (R/A-1/II/109) Melissa (R/A-1/II/121) Anna (R/C-1/II/62) Miranda (R/G-1/II/11) Glenn (Y1/A-1/II/113) Maggie (Y1/A-1/II/119) |

the group. Italics are used in the table to denote those youngsters who, although unsuccessful in reading or recognising the word, were able to identify information providers or means of gaining information when the concept of information was explained to them.

As can be seen, no Reception-aged participant was able to read the term, "information". The ability was noted in two youngsters in Year One, although it was not until Year Two that it became commonplace. Two Year One pupils offered good attempts to read the word but made errors. Mary, in Year Three, was the oldest informant unable to read it, although she subsequently demonstrated a grasp of what it involved. In her case her level of understanding exceeded her ability to read the word. The position of Meredith, in Year Two, was somewhat different. Unlike Mary, she had no mental model of what the term meant, although her attempt to read it was, similarly, partially successful. Karen, in Year One, was alone in possessing an understanding of the subject word yet being unable to make any attempt to read it. Like Mary, her reading skills were surpassed by her level of understanding. However, whereas Mary's Class Teacher (T/G-1/15) indicated that she had a low reading age relative to her colleagues, the inability of Karen, some two years younger, to read the word was not indicative of a wider reading problem. No youngster in the entire sample was in the opposing position of being able to read the word but failing to comprehend its meaning. Seven very young children struggled to make any progress in reading the term, had no idea what it meant when it was read to them and were unable to identify any sources or methods that could help them "find things out". A comparable number of their colleagues of the same age, however, although similarly lacking in ability in the first two areas, still proved able to isolate particular information sources or methods of gaining information.

1.3 Developmental observations

The following comments may be made in terms of the youngsters interviewed individually.

- a) The word, "information", was new to *Reception* children. They were unable either to read it or to attach a meaning to it when they heard it. Once it was explained that it involved "finding out", some could identify ways in which this might be done, usually with reference to particular people.
- b) The ability to read the word, "information", began to develop in *Year One* and the children's understanding of what the term involves also increased during this year.
- c) Most *Year Two* youngsters could read the word confidently and the overwhelming majority could demonstrate an appropriate understanding.
- d) All *Year Three* participants showed a grasp of the term and problems in reading it were rare.
- e) No *Year Four* youngsters experienced any apparent difficulties either in reading or understanding the word.

2 PICTURE-BASED UNDERSTANDINGS

2.1 Types of picture

Whilst the reading and understanding work was applied solely to first schoolers, youngsters in all phases were asked to draw pictures indicating what they believed is meant by the term, "information". Their responses were of four broad types.

- a) No picture was drawn. The reasons for an inability or unwillingness to produce such a drawing were varied.

- In first school individual interviews, children who could not read the word, “information”, and showed no recognition of the term once they heard it were not asked for a picture.
 - The youngster’s understanding of the term was so limited that he or she was unable to draw anything, despite demonstrating some grasp of it earlier.
 - What the youngster wished to draw was too difficult for him or her to represent, even though this took the form of a concrete object or specific situation. Dominic (Y4/A-1/II/116), for example, wanted to show “two people talking” but was unsure how this could be done.
 - The youngster’s constructs of “information” and of the researcher’s instructions (“Please draw a picture to show what you think we mean by the word”) were incompatible. Anneka (Y6/D-2/II/19) explained, “I can draw where we can get information from... But that’s not the same as what you’re asking because what we mean by information is *facts*.” She was unable to conceive a method of representing facts in a drawing. Some participants asked if they could convey their understanding of the word, “information”, orally and others offered a written description.
 - The youngster experienced cognitive overload. Here, so many ideas came to mind that the selection of one or just a few for drawing proved too difficult. According to Joy (Y12/B-3/II/67), “I don’t think I can draw a picture ‘cos there’s so many different elements of information... there’s not one thing that really stands out for me.” Clara (Y12/B-3/II/68) was concerned that simply depicting one of her ideas on paper reflected a prioritising process that could be misinterpreted: “If I just draw one of the things I’m thinking about, that makes it look as if it’s more important than all the others and that’s wrong.”
 - Youngsters who felt that they had so little artistic ability that their work might cause them embarrassment chose not to produce a picture. Frida (Y9/B-3/II/63), for example, when asked to make a sketch, responded uneasily, “I’m not very good at drawing.”
- b) An “ignorant” picture was drawn. Here a picture was produced but it was not underpinned by any knowledge of the word under scrutiny. In one focus group (R-Y2/G-1/FG/1), two Reception girls who initially pretended that they understood the term drew pictures they were later unable to justify. Because of the nature of a focus group, they had been able to indicate an apparent grasp of the word by taking a lead from others. Their initial reluctance to admit their lack of understanding might be attributed to their unwillingness to appear ignorant, and their desire to draw a picture might have derived from an eagerness to sketch something of interest to them, even if it did not relate to the question. Alternatively, perhaps they felt obliged to make some attempt when the other children were seen to be working. The only other “ignorant” picture was drawn by Miranda (R/G-1/II/11), whose comment when she saw the term, “information”, was ambiguous and the researcher was unable to ascertain whether or not she truly recognised it. Miranda then sketched her friend, Molly. When asked to explain why she had done this, she explained, “Cos she plays with me nice.” Like the girls in the focus group, Miranda subsequently acknowledged that she had never heard the term, “information”, before.
- c) An “inexplicable” picture was drawn. Here, a youngster could read the word, “information”, and indicate what it involved but subsequently drew a picture that he or she was unable to explain. Joe (Y3/C-1/II/50), the only youngster to exhibit this behaviour, sketched a door and, when asked why he had done so, replied, “I haven’t a clue... It just came into my head.” Although his reaction suggested he was entirely at a loss to explain his work, given greater linguistic skill, Joe might have been able to convey the idea inspiring it.

d) An “appropriate” picture was drawn. In these instances a youngster demonstrated an understanding of the word, “information”, drew a picture and was able to justify it. Those producing such “relevant” pictures approached the task in two contrasting ways. Some made a single sketch, whilst others brainstormed as many different ideas as possible within the moments available. All the pictures drawn by a single participant were usually of the same type and often took the form of different information providers. The pictures fell into the following broad categories - subjects, providers of information, receptors of information, icons, scenarios, environments and forms:

- **subjects.** A topic on which information could be sought was represented. Thus the informants were concerned with the message of information, rather than the medium. Subject drawings depicted, respectively, a dinosaur (Rupert, Y1/C-1/II/59), planets (Damien⁴, Y3-Y4/A-1/FG/12), a bird (Fiona⁴, Y3-Y4/A-1/FG/12), a volcano (Sasha, Y4/A-1/III/117), a penguin (Russell⁴, Y3-Y4/C-1/FG/6), a dolphin (Siobhan⁴, Y3-Y4/C-1/FG/6), a pig (Joan, Y4/C-1/II/52), a dog (Madeleine, Y5/D-2/II/15), a tree (Madeleine, Y5/D-2/II/15), a guitar (Zack, Y5/C-2/II/27) and a siege in the Crusades (Kieron, Y7/D-2/II/96). Since any area of knowledge may potentially be represented in this way, the high incidence of animal and nature pictures is remarkable. The comments of some pupils, including Sasha, Joan and Zack, indicated that they had clearly availed themselves of the opportunity to draw something they liked and about which they had recently sought information for their own interest. Others, like Rupert and Damien, drew subjects that had lately been addressed in class. Fiona’s justification was less personal. She explained that she had drawn a bird simply “because you can find loads of information in books and computers about birds”;
- **providers of information.** These formed the largest single category of pictures. Figure S shows the different providers drawn and their distribution among youngsters of different ages. The most popular source depicted was the book. Most youngsters did not indicate whether or not this was of a certain type, although others were more specific. Some thought in terms of a dictionary (Edgar, Y2/A-1/II/111, Jeremy, Y5/C-2/II/28), an encyclopedia (Suzanne, Y6/D-2/II/21, Rick⁷, Y7-Y8/D-2/FG/10, Louise, Y8/C-2/II/45, Frida, Y9/B-3/II/63), a “fact-finder” (Tony, Y2/C-1/II/54), a “book of space facts” (Piers, Y5/D-2/II/104), a history book (Alice³, Y3-Y4/A-1/FG/12), “a Romans book” (Maria³, Y3-Y4/A-1/FG/12) or any “non-fiction” or “information” book (Carol³, Y3-Y4/G-1/FG/2, Kylie⁴, Y3-Y4/C-1/FG/6, Wes, Y4/C-1/II/51, Vicky⁴, Y3-Y4/G-1/FG/2, Ian⁴, Y3-Y4/G-1/FG/2, Harvey, Y6/C-2/II/33, Charles⁷, Y7-Y8/C-2/FG/5, Cameron, Y7/C-2/II/43, Andrea, Y7/D-2/II/97, Darren⁸, Y7-Y8/C-2/FG/5). Computers were also well represented. Again, most participants thought in terms of a computer generally, but others specifically indicated computers connected to the Internet (Kevin, Y7/D-2/II/95, Liana, Y13/B-3/II/90) or “PlayStation” systems (Curtis, Y3/A-1/II/115). Sources accessed through computers, such as CD-ROM discs (Nancy⁵, Y5-Y6/C-2/FG/4, Jonty⁷, Y7-Y8/D-2/FG/10, Louis, Y8/D-2/II/103) and Web sites (Rosemary, Y8/D-2/II/98), were also sketched. On one occasion, even a particular CD-ROM title was depicted (Sandra⁶, Y5-Y6/C-2/FG/4);
- **receptors of information.** Alistair (Y5/D-2/II/105) and Greg (Y9/B-3/II/76) drew human brains. Each justified his work in terms of processes associated with the brain’s interaction with information; Alistair reasoning that a brain “can memorise information” and Greg explaining that it allows one to “absorb information”;

FIGURE S: DRAWINGS OF PROVIDERS MADE BY YOUNGSTERS IN SAMPLE

| <div>Pictures drawn</div> <div>School subphase</div> | Books | Computers | Computer-related | Television | Leaflets | Other |
|--|---------------------------------------|--------------------------------------|--|--------------------------------------|-------------------------------------|--|
| Lower first (R-Y2) | Josie (Y2/A-1/II/110) | | | | | |
| | Edgar (Y2/A-1/II/111) | | | | | |
| | Barry (Y2/A-1/II/112) | | | | | |
| | Nicholas ² (R-Y2/C-1/FG/7) | | | | | |
| | Tony (Y2/C-1/II/54) | | | | | |
| | Penelope (Y2/C-1/II/55) | | | | | |
| | Alison ² (R-Y2/G-1/FG/1) | | | | | |
| | Clark ² (R-Y2/G-1/FG/1) | | | | | |
| Upper first (Y3-Y4) | Alice ³ (Y3-Y4/A-1/FG/12) | Corey ³ (Y3-Y4/A-1/FG/12) | | | Colin ⁴ (Y3-Y4/G-1/FG/2) | |
| | Maria ³ (Y3-Y4/A-1/FG/12) | Curtis (Y3/A-1/II/115) | | | | |
| | Carol ³ (Y3-Y4/G-1/FG/2) | Wes (Y4/C-1/II/51) | | | | |
| | Will ⁴ (Y3-Y4/A-1/FG/12) | Diane (Y4/G-1/II/1) | | | | |
| | Kylie ⁴ (Y3-Y4/C-1/FG/6) | | | | | |
| | Wes (Y4/C-1/II/51) | | | | | |
| | Ian ⁴ (Y3-Y4/G-1/FG/2) | | | | | |
| | Diane (Y4/G-1/II/1) | | | | | |
| Lower middle (Y5-Y6) | Nancy ⁵ (Y5-Y6/C-2/FG/4) | Nancy ⁵ (Y5-Y6/C-2/FG/4) | Nancy ⁵ (Y5-Y6/C-2/FG/4): CD-ROM disc | Tim ⁵ (Y5-Y6/C-2/FG/4) | | Christine (Y5/C-2/II/47): information booth |
| | Lisa ⁵ (Y5-Y6/C-2/FG/4) | Lisa ⁵ (Y5-Y6/C-2/FG/4) | Sandra ⁶ (Y5-Y6/C-2/FG/4): CD-ROM discs | Bridge ⁵ (Y5-Y6/D-2/FG/3) | | Sandra ⁶ (Y5-Y6/C-2/FG/4): video cassette |
| | Tim ⁵ (Y5-Y6/C-2/FG/4) | Jeremy (Y5/C-2/II/28) | | Vanessa (Y5/D-2/II/14) | | Pauline (Y6/C-2/II/30): teacher |
| | Jeremy (Y5/C-2/II/28) | Bridge ⁵ (Y5-Y6/D-2/FG/3) | | Sandra ⁶ (Y5-Y6/C-2/FG/4) | | Ruth (Y6/C-2/II/31): essay |
| | Bridge ⁵ (Y5-Y6/D-2/FG/3) | Naomi (Y5/D-2/II/12) | | | | |
| | Nina (Y5/D-2/II/17) | Vanessa (Y5/D-2/II/14) | | | | |
| | Piers (Y5/D-2/II/104) | Piers (Y5/D-2/II/104) | | | | |
| | Sandra ⁶ (Y5-Y6/C-2/FG/4) | Alistair (Y5/D-2/II/105) | | | | |
| | Malcolm ⁶ (Y5-Y6/C-2/FG/4) | Sandra ⁶ (Y5-Y6/C-2/FG/4) | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

| | | | | | | | |
|-------------------------|---|---|--|-----------------------|---|---|--|
| | Harvey (Y6/C-2/II/33) Ewan (Y6/C-2/II/42) Candice (Y6/D-2/II/16) Hilary (Y6/D-2/II/18) Suzanne (Y6/D-2/II/21) | Malcolm ⁶ (Y5-Y6/C-2/FG/4) Hilary (Y6/D-2/II/18) | | | | | |
| Upper middle (Y7-Y8) | Charles ⁷ (Y7-Y8/C-2/FG/5) Maureen (Y7/C-2/II/35) Gail (Y7/C-2/II/37) Clint (Y7/C-2/II/38) Cameron (Y7/C-2/II/43) Jonny ⁷ (Y7-Y8/D-2/FG/10) Rick ⁷ (Y7-Y8/D-2/FG/10) Shane ⁷ (Y7-Y8/D-2/FG/10) Dirk (Y7/D-2/II/94) Andrea (Y7/D-2/II/97) Darren ⁸ (Y7-Y8/C-2/FG/5) Dennis (Y8/C-2/II/40) Louise (Y8/C-2/II/45) Francis ⁸ (Y7-Y8/D-2/FG/10) Rosemary (Y8/D-2/II/98) Kirsty (Y8/D-2/II/99) Lionel (Y8/D-2/II/102) Norman (Y8/D-2/II/106) | Linda (Y7/C-2/II/36) Gail (Y7/C-2/II/37) Clint (Y7/C-2/II/38) Bill (Y7/C-2/II/39) Jonny ⁷ (Y7-Y8/D-2/FG/10) Rick ⁷ (Y7-Y8/D-2/FG/10) Shane ⁷ (Y7-Y8/D-2/FG/10) Kevin (Y7/D-2/II/95) Andrea (Y7/D-2/II/97) Patrick ⁸ (Y7-Y8/C-2/FG/5) Francis ⁸ (Y7-Y8/D-2/FG/10) Neville ⁸ (Y7-Y8/D-2/FG/10) Kirsty (Y8/D-2/II/99) Lionel (Y8/D-2/II/102) Louis (Y8/D-2/II/103) Norman (Y8/D-2/II/106) | Jonny ⁷ (Y7-Y8/D-2/FG/10): CD-ROM disc Rosemary (Y8/D-2/II/98): Web site Louis (Y8/D-2/II/103): CD-ROM disc | Kirsty (Y8/D-2/II/99) | Bill (Y7/C-2/II/39) Kay (Y8/C-2/II/44) Rosemary (Y8/D-2/II/98) Kirsty (Y8/D-2/II/99) | Clint (Y7/C-2/II/38): library Bill (Y7/C-2/II/39): telephone Dirk (Y7/D-2/II/94): illuminated place-finders Pamela ⁸ (Y7-Y8/C-2/FG/5): newspaper Rosemary (Y8/D-2/II/98): library Kirsty (Y8/D-2/II/99): magazines, posters | |
| Lower high (Y9-Y11) | Frida (Y9/B-3/II/63) Bob (Y9/B-3/II/64) Zoe (Y9/B-3/II/79) Mandy (Y11/B-3/II/69) Jean (Y11/B-3/II/70) | Jeff (Y9/B-3/II/77) Ross (Y10/B-3/II/72) Jean (Y11/B-3/II/70) | | Ross (Y10/B-3/II/72) | Adrian (Y10/B-3/II/73) | Adrian (Y10/B-3/II/73): magazine | |
| Upper high (Y12-Y13) | Tessa (Y13/B-3/II/75) Michelle (Y13/B-3/II/89) | Gus (Y12/B-3/II/65) Michelle (Y13/B-3/II/89) | | | | Eileen (Y12/B-3/II/66): parents | |

- **information icons.** Some of the objects drawn were not in themselves sources of information but, to the youngsters who drew them, they either were associated with providers or represented more abstract concepts. They included men who symbolised knowledge, such as Jeeves from the “Ask Jeeves” Website (Rick⁷, Y7-Y8/D-2/FG/10) and Einstein (Francis⁸, Y7-Y8/D-2/FG/10). The light bulbs drawn by Tim⁵ (Y5-Y6/C-2/FG/4) and Linda (Y7/C-2/II/36) proved harder for them to explain. The former could comment only, “I just think of it... I don’t know why.” His colleague, Sandra⁶ (Y5-Y6/C-2/FG/4), tried to assist, “On the telly, if you think of something it goes ‘ding!’... and then like a light bulb.” The notion that such bulbs represent ideas was also expressed by Linda. “Light bulbs mean ideas, and you get ideas from information,” she asserted. For Larry (Y5/C-2/II/26), school had iconic value as, to him, it represented “work” which formed his initial idea on hearing the word. Larry’s attitude is consistent with Pitts’s (1994: 75) discovery that the teenagers in her research interpreted the term, “information”, “as a ‘school word’”. The most frequently drawn icon proved to be the blue “i” information sign, although this was represented variously in upper and lower case. The youngsters producing such a drawing and the contexts in which they understood the sign are shown in Figure T;

FIGURE T: YOUNGSTERS DRAWING “I” INFORMATION SIGNS

| Informant | Context |
|---|---|
| May (Y7/C-2/II/34) | “You see the information sign for centres... in towns... often in the main centre, if there’s people who don’t know where to go” |
| Linda (Y7/C-2/II/36) | “You see them for information centres... They tell you things about places” |
| Shane ⁷ (Y7-Y8/D-2/FG/10) | “You see these big ‘i’ signs on information centres, especially... when you’re on holiday ‘cos they tell you places to go on your holiday” |
| Douglas (Y7/D-2/II/93) | “You see this information thing in towns where you can get stuff that will help you... and next to libraries” |
| Darren ⁸ (Y7-Y8/C-2/FG/5) | “I saw one when I went to Rothbury with the school and we went to this place and got lots of leaflets” |
| Eric (Y8/C-2/II/41) | “You see these big blue ‘i’s - information signs - in information centres like in holiday resorts. They’re usually full of leaflets about places in the area. There’s usually one in the library” |
| Tanya (Y8/C-2/II/46) | “An information sign, like the ‘i’, tells you that there’s information... It’s to indicate that you’re near a library or a Tourist Information Centre” |
| Norman (Y8/D-2/II/106) | “You see information signs in places like Tynemouth Library at the holiday information place and at those big computer things in town” |

- **scenarios.** These pictures were devoted to activities associated with information need identification, information-seeking or information use. Some were inspired by situations actually experienced by the youngsters or by their parents, whilst others were of a more generic nature in which the informant was

not recalling a particular incident. Another depicted an entirely fictitious scenario. The situations recorded are addressed in Figure U. The imaginary “story” is shown with an asterisk;

FIGURE U: SCENARIOS DRAWN BY YOUNGSTERS

| Theme of picture | Content of picture and informant’s explanation |
|---------------------------------|---|
| Information need identification | “Someone’s found something and they want to know more about what it is” (June, Y1/C-1/II/57) |
| | Someone reading a book is “wondering what to find out” (John ³ , Y3-Y4/G-1/FG/2) |
| | A boy is “thinking about what it is he wants to find out about” (Colin ⁴ , Y3-Y4/G-1/FG/2) |
| | Frank himself is “thinking about what” he’s “going to find out about” (Frank ⁵ , Y5-Y6/D-2/FG/3) |
| | “Someone is thinking of something they have to find information about” (Alexandra ⁶ , Y5-Y6/D-2/FG/3) |
| Information-seeking | Victor himself is “reading a dictionary” (Victor ² , R-Y2/A-1/FG/11) |
| | A person with a book is reading it “to look for information” (Don, Y2/G-1/II/4) |
| | A person looking at a computer screen comments, via a speech bubble, “This is very interesting” (Vicky ⁴ , Y3-Y4/G-1/FG/2) |
| | “It’s just like two men. There’s a man looking for a job and he wants more information and the other man’s like... giving him the information” (Christian, Y4/G-1/II/2) |
| | A girl is looking at “An Encyclopedia of Underwater Species” (Rose ⁶ , Y5-Y6/D-2/FG/3) |
| | Someone “is using a computer” (Dudley ⁶ , Y5-Y6/D-2/FG/3) |
| | A person is “looking in a book for facts” (Helena, Y6/D-2/II/20) |
| | “Two people are giving themselves information” (Shane ⁷ , Y7-Y8/D-2/FG/10) |
| | “Someone’s reading a book” (Neville ⁸ , Y7-Y8/D-2/FG/10) |
| Information use | *Gerald himself is “walking down along the MetroCentre [a local indoor shopping centre] and he’s found something on the floor. He picks it up and it says, ‘What’s fifteen add fifteen?’ and he writes it down because it’s a question. So he puts “thirty” and if he’s right he’ll win a trip to California and if he’s wrong he’ll have to stay at school for fifteen days” (Gerald, Y1/G-1/II/8) |
| | “A piece of paper with a pencil” is shown. Their owner has “found out information and he’s going to write it down” (Kenneth, Y3/C-1/II/48) |
| | “A person is writing down information” after “trying to find something out for their topic at school” (Cathy, Y6/C-2/II/32) |

- environments.** These may be understood as sources-in-settings. They differ from pictures of providers in that the source is not seen in isolation but as a feature within a larger area. Only one picture of this kind was drawn. This was by Karen (Y1/G-1/II/7), who sketched her father’s office at work. The information provider within it was his computer workstation;

- *forms*. The different ways in which information might be represented were addressed by Charles' (Y7-Y8/C-2/FG/5), who drew graphs and wrote mathematical calculations. No other informant covered this area.

Many youngsters were familiar with the providers, scenarios and icons they drew as a result of direct experience. Some of the providers were used regularly by the youngsters. Occasionally the depicted scenarios related to events experienced not by the informant personally but by other members of the family. Christian's (Y4/G-1/II/2) picture of a man asking another about information concerning a job, for example, was inspired by the experiences of his mother, who had recently followed a similar course of action.

2.2 Prevalence of the types

2.2.1 No picture

Although, in all the schools, there were instances where youngsters who were asked to draw pictures did not do so, their numbers and the reasons for the lack of pictures varied from phase to phase. In the first schools the numbers of instances where pictures were not drawn were high and were principally due either to the informant failing to possess a sufficiently clear understanding of the term, "information", or to a perceived inability on the informant's part to draw what was desired. Fewer middle schoolers failed to produce pictures. Inability to do so was usually the result of the incompatibility of their constructs of the researcher's instructions and the word under investigation. In the high school phase, the number of youngsters who did not produce a picture was highest of all. Many experienced cognitive overload, some again drew attention to the incongruity between their constructs, whilst a few were alarmed at the prospect of losing face after drawing a poor quality picture. Although it is possible that the third factor was also experienced by younger informants, the older participants seemed either more self-conscious about their artistic ability or more willing to voice their anxieties to the researcher.

2.2.2 Pictures of providers

Figure S, which shows the different providers drawn and their distribution through the six school subphases, deals only with those represented in isolation. None that was incorporated into a scenario or environment is listed. As can be seen, many fewer pictures were produced by the high schoolers than by the youngsters attending either the first or middle schools. The lack of drawings produced by this group may be attributed to three factors.

- a) Fewer pupils were sampled in the high school than in the first and middle school phases. Eighty first schoolers contributed data, sixty-eight middle schoolers and forty high schoolers.
- b) Those high schoolers who produced pictures tended to draw only one, whilst many of their younger counterparts drew several.
- c) Many high schoolers were either reluctant or unable to draw any pictures, for the reasons outlined in section 2.2.1.

Books and computers were easily the most popular providers drawn. Middle schoolers, in particular, often drew pictures of both. Individual instances of this behaviour are shown in italics in Figure S. Of the two sources, books were sketched more often within every school subphase except upper high. No child in the lower first school subphase drew anything other than a book when producing a picture of a provider, although

Karen (Y1/G-1/II/7) showed a computer within her picture of an information environment. She was familiar with IT hardware as she regularly interacted with the computer at home and was used to seeing her father's machine in his office at work. There was only one instance of any first schooler drawing anything apart from a book or computer when showing a solitary provider. The content of the pictures of scenarios, which were drawn only by first and middle schoolers, is again testimony to the importance of books and computers in young people's understanding of the term, "information". A much wider range of sources was depicted by the middle schoolers than the first schoolers, reflecting their growing awareness and use of materials beyond books and computers. A notable feature of the pictures of providers is the lack of people. Only two were shown, although another instance of face-to-face information-seeking was provided in a scenario (Christian, Y4/G-1/II/2).

2.3 Developmental observations

- a) As all Reception children were unfamiliar with the term, "information", none could draw a meaningful picture. The youngest informants able to do so were four pupils in Year One. Their responses differed from those of older colleagues in Year Two, with the former depicting an information subject, scenarios and an environment and the latter drawing only books and book-oriented scenarios. The drawing of the environment formed the sole instance in the lower first subphase in which a computer was shown. The fact that the youngest children showing, in their pictures, an understanding of the word, "information", were aged five rising six is consistent with the findings of Newton and Newton (1992: 346, 1998: 1148) in relation to children's images of scientists, which they believe to emerge around this age.
- b) Upper first and middle school youngsters continued to associate books with information, although computers took on increasing importance. The youngest to link information with computers thought solely in terms of computers per se, whereas some older children addressed specific carriers of information whose content is accessed through computers. Furthermore, a widening range of providers came to be associated with the term. Not only did the youngsters depict actual sources, however; they also sketched icons that were symbolic of either other providers or more abstract associations with information.
- c) Many high schoolers' understandings of the term, "information", were complex, involving a range of disparate elements, some of which were insufficiently concrete to be represented as pictures. Teenagers often ignored, or simply did not consider, the easy option of drawing a particular provider and, in attempting to convey their ideas, some felt more at ease in using words.

3 UNPROMPTED USE OF THE WORD, "INFORMATION"

3.1 Forms of use

Before the researcher introduced the term, "information", in the dialogues, when employed by youngsters the word was almost always used to mean factual knowledge expressed in text. Beyond this general rule, individual strands were apparent. In particular, the word was applied to:

- a) facts that could be or had been obtained from a particular provider. Youngsters drew attention, in this context, to sources such as encyclopedias (Dirk, Y7/D-2/II/94), "history books" (Ruth, Y6/C-2/II/31, Candice, Y6/D-2/II/16), other subject books (Edgar, Y2/A-1/II/111, Kevin, Y7/D-2/II/95, Louis, Y8/D-2/II/103, Duncan, Y12/B-3/II/84), finding aids within books (Will⁴, Y3-Y4/A-1/FG/12, Paula, Y4/A-

1/II/118), “the computer” (Fiona⁴, Y3-Y4/A-1/FG/12), CD-ROM (Naomi, Y5/D-2/II/12, Linda, Y7/C-2/II/36, Shane⁷, Y7-Y8/D-2/FG/10, Andrea, Y7/D-2/II/97, Kay, Y8/C-2/II/44, Louis, Y8/D-2/II/103, Jean, Y11/B-3/II/70), the Internet (Clint, Y7/C-2/II/38, Rick⁷, Y7-Y8/D-2/FG/10, Kay, Y8/C-2/II/44, Neville⁸, Y7-Y8/D-2/FG/10, Gareth¹², Y12-Y13/B-3/FG/9), leaflets (Tanya, Y8/C-2/II/46), worksheets (Pauline, Y6/C-2/II/30), libraries (Wes, Y4/C-1/II/51, Candice, Y6/D-2/II/16, Kirsty, Y8/D-2/II/99) and people (Joan, Y4/C-1/II/52). According to Toby (Y11/B-3/II/87), however, not everything that was found on the Internet could be regarded as information. He considered information to be that which was “valuable” and drew a distinction between “information” and the “trivial details” that the Internet provided. An exception to the pattern of associating information with specific materials or organisations emerged with Jean (Y11/B-3/II/70), who, within the context of Geography fieldwork for school, talked of “collecting information off the streets”;

- b) facts that had been gained from some information-seeking activity, without explicit reference to specific sources. Andrea (Y7/D-2/II/97), for example, talked of recording in her “design file” the information she had found for a homework assignment;
- c) facts pertaining to a particular issue or subject area. Youngsters referred to finding information *about* space (Edgar, Y2/A-1/II/111, Neville⁸, Y7-Y8/D-2/FG/10), countries (Joan, Y4/C-1/II/52), the Trojan War (Piers, Y5/D-2/II/104), clocks (Andrea, Y7/D-2/II/97), new computer games (Eric, Y8/C-2/II/41), wildlife (Francis⁸, Y7-Y8/D-2/FG/10), “the Home Front during the Second World War” (Greg, Y9/B-3/II/76), roller coasters (Ross, Y10/B-3/II/72), pop bands (Toby, Y11/B-3/II/87), television programmes (Tessa, Y13/B-3/II/75) and the Nazi Holocaust (Tessa, Y13/B-3/II/75). In all these cases the information may be considered to have a relevance beyond school and is known and understood by the wider world. Bob (Y9/B-3/II/64), however, talked of seeking information relating to GCSE courses, some of which he had to select for study in the coming months. In this instance the information was much more personal and had a lesser relevance to the world at large;
- d) facts required to satisfy a need, which usually took the form of school work. Ruth (Y6/C-2/II/31) talked of “getting information” *for* an assignment on Tudor fashion, Alexandra⁶ (Y5-Y6/D-2/FG/3) for a local study project on Seahouses and Tanya (Y8/C-2/II/46) for an account of the English Civil War. Ed⁹ (Y9-Y11/B-3/FG/8) described how he had obtained “enough information for what I needed”. Nevertheless, in one instance an informant indicated how he simply *wanted* to find information about a current topic being studied at school (Frank⁵, Y5-Y6/D-2/FG/3). No assignment was required from him. In relation to school work, information was understood by some to vary in size and, on occasions, specific facts or small clusters of them on a specific subject were either required or used. Jean (Y11/B-3/II/70), for example, talked of needing “pieces of information”, whilst Toby (Y11/B-3/II/87) and Harrison (Y12/B-3/II/85) referred to “small bits of information”.

Two of the four strands were frequently evident in youngsters’ use of the term. Jonty⁷ (Y7-Y8/D-2/FG/10), for example, described how he needed information for a school assignment dealing with the “Titanic”, and Rosemary (Y8/D-2/II/98) required information for a Personal and Social Education project on children’s rights.

Just two youngsters employed the term, “information”, to mean anything beyond factual knowledge. Kirsty (Y8/D-2/II/98) used it in relation to a picture upon which she could base forthcoming Design

Technology work, and Adrian (Y11/B-3/II/73) talked of “information to help you quit smoking”. Kirsty’s concept was similar to strand (d) above in that the information, here taking a pictorial form, was needed for a certain purpose. The information sought by Adrian was also required for a particular need, although it was to provide *advice*, rather than *facts*. The typical tendency to associate information purely with text was most apparent in Rick⁷ (Y7-Y8/D-2/FG/10) who, after searching, indicated that he had been unable “to find information. I only got pictures”.

On occasion “information” was employed within a wider phrase. Alexandra⁶ (Y5-Y6/D-2/FG/3) and Dennis (Y8/C-2/II/40) referred to Tourist *Information* Centres, Bill (Y7/C-2/II/39) mentioned “*information* centres such as libraries”, Mandy (Y11/B-3/II/69) talked of “*information* sources” and Toby (Y11/B-3/II/87) discussed the value of the Internet as an “*information* resource”. In each case the word was either a part of a recognised name (i.e. “Tourist Information Centre”) or it was employed adjectivally, clarifying the type of item or place envisioned.

3.2 Prevalence of use of the word, “information”

Many youngsters of upper middle school age and higher frequently introduced the term, “information”, of their own volition. Its use by youngsters was more limited at lower middle school level and only six first schoolers employed it. The youngest was Edgar (Y2/A-1/II/111), who explained that his “book of maps” tells “you a bit of information about space”. The remaining five first schoolers were all in their final year. Fiona⁴ (Y3-Y4/A-1/FG/12) described how, on one occasion, she and her friend had “got information out of the computer”. Her classmate, Will⁴ (Y3-Y4/A-1/FG/12), taking part in the same focus group, spoke of how he tended to use the index of a book rather than its contents list “‘cos it’s got more information”, and Paula (Y4/A-1/II/118) made a similar observation. Wes (Y4/C-1/II/51) outlined how the children’s department of his local library consisted of “a part for storybooks and a part for information”. Joan (Y4/C-1/II/52) used the term on three different occasions. She referred to how she had “read loads of information about one particular country” and twice she indicated how she could “find information” from other people.

The lack of use of the term, “information”, by most first schoolers was marked. Typically, they talked of “finding out about...” or “needing to get to know about”. Thus, they largely referred to process, rather than the product - information - that they sought. Even in the second half of the dialogues, after its introduction by the researcher, very few first schoolers employed the term of their own accord. Several, such as Alison² (R-Y2/G-1/FG/1), in attempting to use the word, stumbled over it, thereby indicating its unfamiliarity to them. Despite the fact that some had frequently heard their teachers use the word and had displayed an understanding of what was meant, they did not use it themselves (Rod³, Y3-Y4/G-1/FG/2, Mary, Y3/G-1/II/3). When a few young informants themselves employed the word, “information”, after its introduction by the researcher, their misuse of it again indicated its novelty to them. Penelope (Y2/C-1/II/55) talked of “getting information from history”, and Gerald (Y1/G-1/II/8) indicated that his CD-ROM disc, “Dangerous Creatures”, “has got a lot of information on guides”. In relation to the latter, it later emerged that these “guides” were characters who provided the user with information about animals in different countries. The information did not actually pertain to the guides. Gerald’s confusion seems symptomatic of misconceptions involving the media and the message. Work by Marchionini and Teague (1987: 153) also suggests that young children may struggle to separate the two as effectively as their older colleagues.

The narrow width of meanings applied by the youngsters when using the term, “information”, was striking. In each of the four highest subphases, it was usually applied to facts obtained from a certain source. Its employment to refer to facts about a particular subject was much less common and its use in relation to what was required to satisfy a need was rarer still.

3.3 “Information” and “stuff”

The fact that many older informants used the term, “information”, so frequently runs contrary to the observations of researchers such as Dobson (2000: 29), who writes, “children do not look for ‘information’, they look for ‘stuff’.” Burdick (1997: 32), too, found that her youngsters used “stuff” to mean information, and Blanshard (2000: 9) associates its use in this context with the modern library vernacular. The Whitley Bay project found evidence of widespread use of “stuff” among the informants in relation to information-seeking. The manner in which the term was used varied considerably and five different strands were identified:

- a) as a synonym for information. Dennis (Y8/C-2/II/40) told of how “we’re doing an RE project about Jesus and I had to find out some stuff about him”. Occasionally “stuff” was employed specifically to mean information in a book, or even, most precisely, the words and numbers in an index. Penelope (Y2/C-1/II/55), for example, recalled how she had looked in the index of a book, searched for “D” [for “Millennium Dome”] and there was “lots of stuff” on the subject, and Sandra⁶ (Y5-Y6/C-2/FG/4) described how, in an index, “it might say like ‘animal’ and underneath it might say ‘reptiles’ and stuff like that”;
- b) to mean materials. Dirk (Y7/D-2/II/94) explained that the school library was not of much help to him because “I knew most of the stuff that was in there”;
- c) to mean subject content. Curtis (Y3/A-1/II/115) described books he had at home “that tell me about stuff”;
- d) to mean academic work. Kirsty (Y8/D-2/II/99) talked of “doing stuff about historical events” at school;
- e) in a specific context to mean any materials, areas of content or activities that might accompany those already mentioned. The word might correspond to “etcetera” or “and so on”. Often, however, “stuff”, was simply tacked on by an informant to his or her comment almost automatically, without any real meaning being added.

The term, “stuff”, was used more often by youngsters in each of the three phases than “information” but, as can be seen from the above, only in some contexts and by some youngsters was it employed for the same purpose. It was evidently a word of a much more general nature and, at times, was used to mean virtually whatever youngsters wished.

3.4 Developmental observations

- a) First schoolers infrequently used the word, “information”, of their own volition. Older youngsters employed it much more often but, at all phases, it was used on fewer occasions than the more generally applied “stuff”.
- b) When “information”, was used, its meaning varied little across middle and high school phases. It typically referred to a body of knowledge, large or small, recorded in text, relating to a particular subject area and obtained via interaction with materials such as books or computers.

4 STATED DEFINITIONS

4.1 Individual strands of meaning

The manner in which the informants offered their definitions varied. Some had a dictionary-like formality, whilst others took a more colloquial form based either around hypothetical scenarios or situations that participants had experienced personally. In view of Hord's (1995) assertion that "there is no consensus as to the meaning of this word" and the statement of the "International Encyclopedia of Information and Library Science" (1997: 184) that "information" is possibly "the least precisely used" term in the discipline, it is not surprising that analysis of the entirety of youngsters' explicit explanations revealed there to be as many as twelve individual elements, many of them with subgroups:

- a) the "recognitional" strand, in which the word was recognised and the informant suggested where it might be seen. Brian¹ (R-Y2/G-1/FG/1), the only youngster to define information in this way, explained "it's got a word in a book". Elaborating, he recalled how he had seen the term in a dictionary and this was the book to which he was referring. As such a loose definition may be applied to virtually any word and Brian did not offer additional insight into the nature of information, it cannot be guaranteed that he had a real mental model of the term;
- b) the "need-centred" strand, in which information was understood as what was sought when a certain type of feeling was experienced by an individual. Some youngsters spoke generally of a *need* to know, learn or find out something (Barry, Y2/A-1/II/112, Dominic, Y4/A-1/II/116, Suzanne, Y6/D-2/II/21, Antony, Y13/B-3/II/74), while others described a sense of *wanting* to know or learn more (June, Y1/C-1/II/57, Alison², R-Y2/G-1/FG/1, Derek, Y2/G-1/II/6, Curtis, Y3/A-1/II/115, John³, Y3-Y4/G-1/FG/2, Kylie⁴, Y3-Y4/C-1/FG/6, Christian, Y4/G-1/II/2, Christine, Y5/C-2/II/47, Judy, Y5/D-2/II/13, Rose⁶, Y5-Y6/D-2/FG/3, Rosemary, Y8/D-2/II/98), "not being sure of something" (Lynne, Y3/C-1/II/49) or requiring help (Christian, Y4/G-1/II/2). Alice³ (Y3-Y4/A-1/FG/12) was one of the few to define the need more specifically, explaining that you might "get some really hard homework and get stuck on it";
- c) the "form-oriented" strand, in which a particular manner of information presentation was specified. Rupert (Y1/C-1/II/59), Sally² (R-Y2/A-1/FG/11) and Francis⁸ (Y7-Y8/D-2/FG/10) talked of information taking the form of words, Sally indicating "words meaning something", and Malcolm⁶ (Y5-Y6/C-2/FG/4) referred to it as "printing". Damien⁴ (Y3-Y4/A-1/FG/12) was more elaborate, defining information as "a piece of text", and Russell⁴'s (Y3-Y4/C-1/FG/6) description of information as "a detailed piece of writing" is similar in nature. Whilst these first schoolers assumed information to take written form, several older informants offered a contrasting perspective. Nigel (Y5/C-2/II/29) indicated that information could be pictures "that an artist could do... pictures of Shakespeare and things like that... photos of famous people in the past, as well as writing". Ed⁹ (Y9-Y11/B-3/FG/8), too, believed that "text and pictures" might both constitute information. Tessa (Y13/B-3/II/75) concurred, asserting that information could take "any visual form", as well as spoken words. Indicating that it could be provided "in different ways", Antony (Y13/B-3/II/74) mentioned graphs in addition to words as information forms. Older informants frequently recognised a greater diversity of ways in which information might be presented;
- d) the "linguistic structure" strand, in which information was assumed to be textual and composed of words, paragraphs and sentences. Alexandra⁶ (Y5-Y6/D-2/FG/3) and Candice (Y6/D-2/II/16) offered definitions of this kind. The former described information as "like a word, a paragraph or sentence", whilst the latter

indicated that, although its extent might vary, information usually consisted of “lots and lots of words put together and lots of paragraphs”;

e) the “source-driven” strand, in which information was defined on the basis that it could be obtained from materials or organisations. According to Choo (2000: 245), this is a popular perception of information among people. Wilson (1981: 3) recognises that many user studies are based on an assumption that information denotes a “physical entity”, such as journals or books, and Krikelas (1983: 7) writes how information is often equated with “the literature”. The sources quoted by the informants in the study are shown in Figure V. Definitions of this type varied from those that simply indicated that information could be elicited from a range of sources (Frida, Y9/B-3/II/63, Liana, Y13/B-3/II/90), to those that specified particular materials or places. Candice (Y6/D-2/II/16), Toby (Y11/B-3/II/87) and Joy (Y12/B-3/II/67) took a dual approach. Commenting that information could be obtained from different providers, they then, as if to clarify their meaning, highlighted some examples. The indication that information could be gained from a variety of sources was common among high schoolers, who were more at ease in generalising, whereas younger children often named specific materials or resources. Some youngsters listed several. Those referred to included books in general (Don, Y2/G-1/II/4, Rod³, Y3-Y4/G-1/FG/2, Joan, Y4/C-1/II/52, Ian⁴, Y3-Y4/G-1/FG/2, Madeleine, Y5/D-2/II/15, Candice, Y6/D-2/II/16, Hilary, Y6/D-2/II/18, Rick⁷, Y7-Y8/D-2/FG/10, Kirsty, Y8/D-2/II/99, Toby, Y11/B-3/II/87, Eileen, Y12/B-3/II/66), non-fiction or “information” books (Francesca, Y2/G-1/II/5, Alice³, Y3-Y4/A-1/FG/12, Wes, Y4/C-1/II/51, Hilary, Y6/D-2/II/18), indexes in books (Jonty⁷, Y7-Y8/D-2/FG/10), subject books (Christine, Y5/C-2/II/47), “history books” (Tim³, Y5-Y6/C-2/FG/4), encyclopedias (Jonty⁷, Y7-Y8/D-2/FG/10), dictionaries (Barry, Y2/A-1/II/112, Tim³, Y5-Y6/C-2/FG/4, Jonty⁷, Y7-Y8/D-2/FG/10), “up-to-date accounts” (Joy, Y12/B-3/II/67), “computers” (Kenneth, Y3/C-1/II/48, Rod³, Y3-Y4/G-1/FG/2, Ian⁴, Y3-Y4/G-1/FG/2, Madeleine, Y5/D-2/II/15, Candice, Y6/D-2/II/16, Rick⁷, Y7-Y8/D-2/FG/10), the Internet (Toby, Y11/B-3/II/87), Web sites (Barry, Y2/A-1/II/112), television news programmes (Toby, Y11/B-3/II/87, Joy, Y12/B-3/II/67), newspapers (Joy, Y12/B-3/II/67), people (Don, Y2/G-1/II/4, Curtis, Y3/A-1/II/115, Ian⁴, Y3-Y4/G-1/FG/2, Barbara, Y4/G-1/II/22, Madeleine, Y5/D-2/II/15, Suzanne, Y6/D-2/II/21, Rick⁷, Y7-Y8/D-2/FG/10, Francis⁸, Y7-Y8/D-2/FG/10, Eileen, Y12/B-3/II/66, Joy, Y12/B-3/II/67, Tessa, Y13/B-3/II/75) and libraries (Candice, Y6/D-2/II/16, Joy, Y12/B-3/II/67). Some of the youngest children to take this approach, such as Tony (Y2/C-1/II/54), quoted specific book titles that were familiar to them. Throughout the educational phases, however, the sources mentioned were almost always those actually used by the youngsters. People who were regarded as providers fell into three broad categories:

- *subject experts*. Curtis (Y3/A-1/II/115) referred to how information might be obtained by asking “someone who you thought might know” about the topic of interest;
- *general societal “wise men”*, like teachers (Barbara, Y4/G-1/II/22, Tessa, Y13/B-3/II/75);
- *individuals such as friends* (Ian⁴, Y3-Y4/G-1/FG/2, Tessa, Y13/B-3/II/75), who had neither expert knowledge nor appropriate status within society. Their importance as providers derived from the fact they were readily available to an inquirer.

Rick⁷ (Y7-Y8/D-2/FG/10) offered his own typology of sources, describing books and computers as “formal”, whereas people were labelled “informal”. Rick’s categories approximate to those of Wilson’s (1981: 3) in relation to channels of communication, in that “formal” sources correspond to the written

FIGURE V: ACTUAL SOURCES REFERRED TO BY YOUNGSTERS IN “SOURCE-DRIVEN” STRAND OF DEFINITIONS

| <div>Pictures drawn</div> <div>School subphase</div> | Books/parts of books | Computers | Computer-related | People | Libraries | Other |
|--|--------------------------------------|-------------------------------------|-----------------------|--|------------------------|---|
| Lower first (R-Y2) | Barry (Y2/A-1/II/112) | | Barry (Y2/A-1/II/112) | Don (Y2/G-1/II/4) | | |
| | Tony (Y2/C-1/II/54) | | | | | |
| | Don (Y2/G-1/II/4) | | | | | |
| | Francesca (Y2/G-1/II/5) | | | | | |
| Upper first (Y3-Y4) | Alice ³ (Y3-Y4/A-1/FG/12) | Kenneth (Y3/C-1/II/48) | | Curtis (Y3/A-1/II/115) | | |
| | Rod ³ (Y3-Y4/G-1/FG/2) | Rod ³ (Y3-Y4/G-1/FG/2) | | Ian ⁴ (Y3-Y4/G-1/FG/2) | | |
| | Wes (Y4/C-1/II/51) | Ian ⁴ (Y3-Y4/G-1/FG/2) | | Barbara (Y4/G-1/II/22) | | |
| | Joan (Y4/C-1/II/52) | | | | | |
| | Ian ⁴ (Y3-Y4/G-1/FG/2) | | | | | |
| Lower middle (Y5-Y6) | Tim ⁵ (Y5-Y6/C-2/FG/4) | Madeleine (Y5/D-2/II/15) | | Madeleine (Y5/D-2/II/15) | Candice (Y6/D-2/II/16) | |
| | Christine (Y5/C-2/II/47) | Candice (Y6/D-2/II/16) | | Suzanne (Y6/D-2/II/21) | | |
| | Madeleine (Y5/D-2/II/15) | | | | | |
| | Candice (Y6/D-2/II/16) | | | | | |
| | Hilary (Y6/D-2/II/18) | | | | | |
| Upper middle (Y7-Y8) | Jonty ⁷ (Y7-Y8/D-2/FG/10) | Rick ⁷ (Y7-Y8/D-2/FG/10) | | Rick ⁷ (Y7-Y8/D-2/FG/10) | | |
| | Rick ⁷ (Y7-Y8/D-2/FG/10) | | | Francis ⁸ (Y7-Y8/D-2/FG/10) | | |
| | Kirsty (Y8/D-2/II/99) | | | | | |
| Lower high (Y9-Y11) | Toby (Y11/B-3/II/87) | | Toby (Y11/B-3/II/87) | | | Toby (Y11/B-3/II/87): television news programmes |
| Upper high (Y12-Y13) | Eileen (Y12/B-3/II/66) | | | Eileen (Y12/B-3/II/66) Joy (Y12/B-3/II/67) Tessa (Y13/B-3/II/75) | Joy (Y12/B-3/II/67) | Joy (Y12/B-3/II/67): television news programmes, newspapers and “up-to-date accounts” |

channel and “informal” to the oral. Similarities may also be drawn between Rick’s constructs and Cheuk’s (1999) information-seeking strategies. Cheuk refers to actions such as reading academic journals and reports as “careful” strategies, whilst the asking of friends and watching of videos are dubbed “casual” strategies;

- f) the “synonymous” strand, in which information was associated with words that, to the informant, conveyed a similar meaning. When a synonym was employed, “information” was overwhelmingly equated with “facts” (Len¹, R-Y2/C-1/FG/7, Siobhan⁴, Y3-Y4/C-1/FG/6, Tim⁵, Y5-Y6/C-2/FG/4, Nigel, Y5/C-2/II/29, Vanessa, Y5/D-2/II/14, Piers, Y5/D-2/II/104, Anneka, Y6/D-2/II/19, Eric, Y8/C-2/II/41, Francis⁸, Y7-Y8/D-2/FG/10, Ross, Y10/B-3/II/72, Mandy, Y11/B-3/II/69), although other synonyms were “stuff” (Penelope, Y2/C-1/II/55, Eric, Y8/C-2/II/41), “important stuff” (Barbara, Y4/G-1/II/22), “messages” (Barbara, Y4/G-1/II/22) and “knowledge” (Cameron, Y7/C-2/II/43, Darren⁸, Y7-Y8/C-2/FG/5, Francis⁸, Y7-Y8/D-2/FG/10, Greg, Y9/B-3/II/76). Chen and Hernon (1982: 5) believe information to cover similar areas; they quote specifically “knowledge, ideas, facts [and] data”. Wersig and Neveling (1975: 130), Yovits (1975: 92) and McGarry (1993: 1, 4) comment that the terms, “information” and “knowledge”, are frequently used interchangeably, although McGarry believes that the former may also be regarded as the raw material from which the latter is derived. Preece (1994: 77), while accepting that information “is another word for knowledge”, draws attention to similar differences. Further distinctions are made by Ziman (1968: 120), Nitecki (1985: 388), Laurillard (1993: 123) and Orna (1999: 8). No such differences were elucidated by any youngster in the study, however.

Whilst also using vocabulary such as “facts” and “knowledge”, some informants employed further words that suggest they considered these terms not *directly* synonymous with the word under scrutiny. Tony (Y2/C-1/II/54), Siobhan⁴ (Y3-Y4/C-1/FG/6) and Judy (Y5/D-2/II/13) all argued that information “tells you facts”, whilst Wendy (Y4/C-1/II/53) indicated that “facts give us information”. At the highest phase, Adrian (Y10/B-3/II/73) and Jean (Y11/B-3/II/70) both described information as “a source of knowledge”, and Duncan (Y12/B-3/II/84) considered it “a source of fact”. In each case the precise differences between concepts such as “information” and “knowledge” or “facts” were left unspecified. Gus (Y12/B-3/II/65) was more unequivocal, believing knowledge to be “information” only if it were useful. A similar distinction is made by Sanger (1985: 68). He defines information as material that an individual considers “significant”, and dismisses material that lacks “immediate value” as mere “data”;

- g) the “content-based” strand, in which some kind of area that information might embrace was outlined in either general or specific terms. This was done in eight ways:

- **unbound subject scope.** Here a very open definition was offered, with the informant emphasising breadth. Josie (Y2/A-1/II/110) talked of how information dealt with “a lot of things”. Almost identical language was used by Alan¹ (R-Y2/G-1/FG/1) and Judy (Y5/D-2/II/13). Sasha (Y4/A-1/II/117) explained how it dealt with “any topic”. Similar comments included, “It tells you about something... anything really” (Kenneth, Y3/C-1/II/48, Wes, Y4/C-1/II/51). Joan (Y4/C-1/II/52) concurred, “It’s not just about one thing. It’s about any subject you can find or any object.” In talking about information addressing “something” or “things”, many, including Joshua³ (Y3-Y4/C-1/FG/6), Madeleine (Y5/D-2/II/15), Isaac (Y5/D-2/II/101) and Clint (Y7/C-2/II/38), did not provide further clarification. Perhaps the most open definition was that of Lionel (Y8/D-2/II/102), who considered, “It tells you something

about something.” The tendency to define the content of information in such broad terms was particularly common among first and middle schoolers, some of whom might have lacked the linguistic or cognitive skills to offer a more detailed explanation. Louis (Y8/D-2/II/103), however, tried to define a continuum. He believed information to address “anything... from everyday things to really important stuff”. Levitan (1980: 244) considers this characteristic of information, namely that “it pertains to everything”, to be a key feature of its nature;

- ***in relation to the need.*** For some, information was that which satisfies a need. According to Rosemary (Y8/D-2/II/98), “It’s what tells you what you want to know.” A comparable line was taken by Malcolm⁶ (Y5-Y6/C-2/FG/4) and Antony (Y13/B-3/II/74). Whilst similar to the “need-centred” strand, it differs in that here the need was not represented as a process but rather as a means of simply identifying the content that information addressed;
- ***information as unknown knowledge.*** On occasions, information was envisioned as content hitherto unknown to the seeker. Edgar (Y2/A-1/II/111) described how, to him, the word addressed “what you might not know about”. This coincides almost exactly with Atkin’s (1973: 207) definition of information. Although, like the “need-centred” strand, this type of definition emphasises something missing or unknown to an inquirer, here no indication is given that the information is actually desired. Further ideas exhibiting this principle of information as an unknown include Rupert’s (Y1/C-1/II/59) definition of “information” as “words that help you”, Candice’s (Y6/D-2/II/16) “things you’re not sure of” and Petra¹¹’s (Y9-Y11/B-3/FG/8) “things that you didn’t know before, new knowledge”. According to Tony (Y2/C-1/II/54), not only might the information be unknown but, if the reader finds it surprising, he or she may doubt its truth;
- ***information as known knowledge.*** The opposite approach was taken by some who considered information to represent an individual’s knowledge. Nigel (Y5/C-2/II/29) indicated that information took the form of “facts that people keep in their head and they don’t really forget”, and Eve⁷ (Y7-Y8/C-2/FG/5) defined it as simply “what you know”;
- ***information as known and unknown knowledge.*** A few youngsters recognised that information could consist of both the previous elements. Francis⁸ (Y7-Y8/D-2/FG/10) commented that information involved “facts that you know or you don’t”. Vanessa (Y5/D-2/II/14) and Eric (Y8/C-2/II/41) made similar observations;
- ***information in relation to activity.*** Here information was viewed as a product understood either in terms of potential action, i.e. “what *can be* found out or learnt”, or actual action, i.e. “what *is* found out or learnt”. Larry (Y5/C-2/II/26) and Greg (Y9/B-3/II/76) defined information in the former fashion, whilst for Helena (Y6/D-2/II/20) it was an outcome of what had been done. To her, information was “the thing you find out”. Daisy² (R-Y2/C-1/FG/7) and Suzanne (Y6/D-2/II/21) expressed the same opinion;
- ***aspect coverage.*** Attempts were made by some to formulate rules describing what information might cover. Although several were again broad, like May’s (Y7/C-2/II/34) assessment that it dealt with “something or someone” and Norman’s (Y8/D-2/II/106) definition that it related to “subjects, people and places”, such comments still represented attempts to mark boundaries, and were different in character from those defining information as covering “anything”.

A few first schoolers tried to impose some limits on the scope of information and thereby concretise the concept. Victor² (R-Y2/A-1/FG/11) explained that it addressed “what things mean”. Joe (Y3/C-1/II/50) suggested that it might tell us “what things are called... how long they are” and Damien⁴ (Y3-Y4/A-1/FG/12) believed that it covered “what something is... how it works and things like that”. Russell⁴ (Y3-Y4/C-1/FG/6) equated information with explanations, indicating that information “explains what something is about”. Austin (Y3/G-1/II/23) and Zack (Y5/C-2/II/27) made a similar observation, both noting that information “describes something”, and Louise’s (Y8/C-2/II/45) assertion that information provides “a detailed reason for the thing or object” is comparable.

Rather than presenting a formal “rule”, some youngsters in the early first school years isolated specific areas that information might address, knowing that this was not all that information could cover. Karen (Y1/G-1/II/7) explained that information might include “where you live, what door number... and who you are”. Francesca (Y2/G-1/II/5), wrestling with how to express the manner in which information conveys the attributes of subjects in question, such as animals, suggested tentatively how information about animals might indicate “if they have it [a particular characteristic] or not... stuff like that”;

- *specific information types.* Whilst the tendency of many to equate information with facts has already been noted, some older informants emphasised that information could include other types of material. Emily (Y10/B-3/II/82) talked of how it could embrace “people’s views on stuff and the facts and figures”, and Scarlett (Y10/B-3/II/80), indicated that it might include “opposing points of view”. Toby (Y11/B-3/II/87), formed a rule which, unlike that of many of the younger people, addressed information types as well as content. He defined information as “all facts, figures and opinions which relate to any particular area of knowledge”. This definition bears some resemblance to Hord’s (1995) belief that information involves “claims about states of affairs”, in that he does not insist that these “claims” must be universally agreed. Toby’s reference to opinion is echoed in Dervin’s (1983: 5) statement that information “is simply the sense made by individuals” and may take the form of “opinions”, or even “delusions”, as well as facts. Wilson (1981: 5) and Poston-Anderson and Edwards (1993: 25) have also indicated that information includes opinions. Among high schoolers, such an emphasis was common. Duncan (Y12/B-3/II/84) was one of those putting forward the idea of information taking the form of opinion, and Harrison (Y12/B-3/II/85) reached the same conclusion. The latter reasoned, “We say we get information from newspapers... but what they give us isn’t always facts, is it?” If the information=facts dimension is excluded, few first or middle schoolers defined information in terms of particular types of material. Exceptions included Paula (Y4/A-1/II/118) and Kevin (Y7/D-2/II/95). The former indicated that information could be “good advice”, whilst the latter suggested that “news” was a certain type of information;

- h) the “illustrative, definition-by-example” strand, in which informants provided statements of fact which they considered to represent information. Some were based on what had been learnt in projects at school. Olivia (Y3/A-1/II/114), for example, commented, “When the Roman soldiers were doing some marching, the leader would be the Centurion or Standard Bearer... Now, if the Standard - that’s that big thing - gets captured, it’s bye, bye battle. The Romans lost. *That’s* information.” Olivia offered a further example, again in relation to work at school, “In olden days, you got the Black Plague by picking up dead rats by the tail.”

Other youngsters volunteered statements of fact that bore no obvious link to school work that they were undertaking. Gerald (Y1/G-1/II/8) indicated that an answer of “thirty” to the question, “What’s fifteen add fifteen?” constituted information. Likewise, Francesca’s (Y2/G-1/II/5) statement, “horses have tails”, and Austin’s (Y3/G-1/II/23) assertion that “you can get black eyes” were considered to represent information. Whereas these informants isolated individual statements of fact, Piers (Y5/D-2/II/104) provided several in relation to one subject. He offered, “Let’s see. Take a car. It has different uses... like they can get you from point ‘A’ to point ‘B’. They can take you on long-range travel. They can be easily moved across seas on ferries...”;

- i) the “action-process” strand, in which “information” was associated with action by an inquirer after a need had been identified. This approach differed from the sixth “content-based” element as the term was seen not as a product but central to or even part of a process, in the manner described by Dervin (1976b: 326), who believes that one perspective of “information” is that it may refer to “procedures”. Similarly, Kemp (1997: 51) argues that information may be understood as a process of communication between a source and a receiver. For the youngsters in the study, the process could take the form of simply “finding out” (Don, Y2/G-1/II/4, Francesca, Y2/G-1/II/5, Lynne, Y3/C-1/II/49, John³, Y3-Y4/G-1/FG/2, Kylie⁴, Y3-Y4/C-1/FG/6, Wes, Y4/C-1/II/51, Joan, Y4/C-1/II/52, Tim⁵, Y5-Y6/C-2/FG/4, Gillian⁵, Y5-Y6/D-2/FG/3, Naomi, Y5/D-2/II/12, Vanessa, Y5/D-2/II/14, Madeleine, Y5/D-2/II/15, Nina, Y5/D-2/II/17, Pauline, Y6/C-2/II/30, Ruth, Y6/C-2/II/31, Hilary, Y6/D-2/II/18, Suzanne, Y6/D-2/II/21, Helena Y6/D-2/II/20, Gail, Y7/C-2/II/37, Jonty⁷, Y7-Y8/D-2/FG/10, Douglas, Y7/D-2/II/93, Dirk, Y7/D-2/II/94, Andrea, Y7/D-2/II/97, Frida, Y9/B-3/II/63, Zoe, Y9/B-3/II/79), “getting stuff” (Penelope, Y2/C-1/II/55), “discovering things” (Linda, Y7/C-2/II/36) or “getting news” (Kevin, Y7/D-2/II/95). Other actions involved performing skills necessary for “finding out”. Tessa (Y13/B-3/II/75) grouped these into two categories - “visual and vocal”. The individual actions that were specified included “looking up” (Barry, Y2/A-1/II/112, Christine, Y5/C-2/II/47), “looking for...” (Dominic, Y4/A-1/II/116), “looking in/on/at...” (Tim⁵, Y5-Y6/C-2/FG/4, Frank⁵, Y5-Y6/D-2/FG/3, Gillian⁵, Y5-Y6/D-2/FG/3, Madeleine, Y5/D-2/II/15), “reading” (Wendy, Y4/C-1/II/53), “reading about...” (Sasha, Y4/A-1/II/117), “watching” (Sasha, Y4/A-1/II/117) and asking (Barry, Y2/A-1/II/112, Don, Y2/G-1/II/4, Curtis, Y3/A-1/II/115, Dominic, Y4/A-1/II/116, Ian⁴, Y3-Y4/G-1/FG/2, Madeleine, Y5/D-2/II/15, Suzanne, Y6/D-2/II/21, Tessa, Y13/B-3/II/75). In terms of precision, Greg’s (Y9/B-3/II/76) suggestion that information is associated with “how you interact with things” may be considered to lie between the generic action of “finding out” and the specific actions of accessing information, as it refers explicitly to materials (or “things”) but does not indicate the form this interaction could take. Suzanne (Y6/D-2/II/21) added a further dimension, indicating that, when dealing with other people, not only was the action of “asking” required by the inquirer but the action of “telling” was needed on the part of the informer. Rose⁶ (Y5-Y6/D-2/FG/3) realised, however, that not all information was obtained through action by an inquirer. She commented that “sometimes you get it given to you”.

In most cases the youngsters focused on the actions taken by inquirers to gain information for themselves. Frank⁵ (Y5-Y6/D-2/FG/3), however, indicated that he might pass on information to another party, “If you’re telling someone, they’re finding out what you know.” Dudley⁶ (Y5-Y6/D-2/FG/3) also suggested that information could be “given”, as well as “stored in your head”. To Frank, however, the act of storing information was less conscious than seeking it. He explained, “It’s like every day you hear

information but you don't realise it. You just ignore it but it's like in your brain. When your teacher asks a question then you use it but you don't really realise." This may explain why the actions articulated by the youngsters were generally those associated with information acquisition, rather than storage;

- j) the **"semiotic" strand**, in which information was understood as conveying meaning to a recipient. The term, "semiotic", is borrowed from Hord (1995), who explains how information "has a semiotic aspect" - it exists in signs that carry meaning. Faibisoff and Ely (1976: 3) and Kemp (1997: 52) hold a similar view. The notion that information "tells you" about a particular area of knowledge was expressed by many youngsters, including Alan¹ (R-Y2/G-1/FG/1), Victor² (R-Y2/A-1/FG/11), Josie (Y2/A-1/II/110), Edgar (Y2/A-1/II/111), Nicholas² (R-Y2/C-1/FG/7), Tony (Y2/C-1/II/54), Curtis (Y3/A-1/II/115), Joshua³ (Y3-Y4/C-1/FG/6), Dominic (Y4/A-1/II/116), Kylie⁴ (Y3-Y4/C-1/FG/6), Wes (Y4/C-1/II/51), Barbara (Y4/G-1/II/22), Judy (Y5/D-2/II/13), Isaac (Y5/D-2/II/101), Malcolm⁶ (Y5-Y6/C-2/FG/4), Alexandra⁶ (Y5-Y6/D-2/FG/3), Hilary (Y6/D-2/II/18), May (Y7/C-2/II/34), Clint (Y7/C-2/II/38), Dirk (Y7/D-2/II/94), Rosemary (Y8/D-2/II/98), Lionel (Y8/D-2/II/102), Norman (Y8/D-2/II/106) and Antony (Y13/B-3/II/74);
- k) the **"illuminatory" strand**, in which information was seen as a cognitive change agent, enhancing in some way what is known by an individual. This coincides with Dervin and Nilan's (1986: 16) observation that information may "transform the recipient's state of knowledge". Wersig and Neveling (1975: 131-32), Pratt (1977: 215), Bereiter and Scardamalia (1989: 375), McGarry (1993: 4) and Pitts (1994: 66) present a comparable argument. Within the Whitley Bay study, information was frequently seen as an aid to learning (Nicholas², R-Y2/C-1/FG/7, Paula, Y4/A-1/II/118, Piers, Y5/D-2/II/104, Rick⁷, Y7-Y8/D-2/FG/10, Kevin, Y7/D-2/II/95, Greg, Y9/B-3/II/76, Jeff, Y9/B-3/II/77, Lesley, Y9/B-3/II/78, Zoe, Y9/B-3/II/79, Alec, Y11/B-3/II/71) or as providing a form of help leading to greater understanding, often in relation to studies at school (Frank⁵, Y5-Y6/D-2/FG/3, Naomi, Y5/D-2/II/12, Shane⁷, Y7-Y8/D-2/FG/10, Louis, Y8/D-2/II/103). Eskola (1998) holds a similar view, emphasising the role of information within the context of students' work. Specifically, she envisions it to be a prerequisite "when they construct meaning about the subjects in the process of learning".

More specific ways in which information was considered by the informants to benefit an individual are listed below. These youngsters formed close associations between information and one's own knowledge and ideas.

- "It helps you get the idea in your head" (Dominic, Y4/A-1/II/116).
- It helps you to "get to know more about something" (Diane, Y4/G-1/II/1).
- "It gives you more ideas of what things are" (Vanessa, Y5/D-2/II/14).
- "It gives you ideas and makes you know more about the subject you're learning" (Bill, Y8/C-2/II/39).
- "It makes you become informed" (Francis⁸, Y7-Y8/D-2/FG/10).
- "It helps you know about things" (Frida, Y9/B-3/II/63).
- "It gives us a way of understanding things" (Bob, Y9/B-3/II/64).
- "It's a way of gaining knowledge" (Lesley, Y9/B-3/II/78).
- It helps you "expand your knowledge" (Julia¹¹, Y9-Y11/B-3/FG/8).
- "It's something we can gain knowledge from" (Liana, Y13/B-3/II/90).

The most radical proponent of the "illuminatory" view was Eileen (Y12/B-3/II/66), who asserted, "It's not really information until it actually informs someone." For her, this informing was the culmination of a

process beginning with knowledge being “set down in a book”. Only when an individual became informed through either reading the book or being told by another person could the knowledge be regarded as information. A similar approach has been taken by Umiker-Sebeok and Gregson (1998), who write that not unless the contents of sources are “read, interpreted and put to use by a person with an information need do they move from raw data to information”. Eileen’s argument is analogous to the classic philosophical question, “If a tree falls in a deserted forest, is there a noise?” Taking Eileen’s stance, the question may be reworked, “Can knowledge which may be recorded but which is not passed on to others be considered ‘information’?” The importance of ties between the source and receiver has also been identified by Kemp (1997: 51-52), who stresses that the relationship between them is similar to the argument that “there can be no knowledge without a knower”;

- 1) the “use-related” strand, in which information was defined on the basis of its utility, either actual or projected. Larry (Y5/C-2/II/26) described information as “things that can come in handy one day” and Gus (Y12/B-3/II/65) regarded it as “useful knowledge”. Here no explicit indication is given that a knowledge state is changed. Material is simply stored and may be employed in an appropriate situation. Another use-related definition has been provided by Yovits (1975: 93), who interprets information in terms of its value in decision-making. Whilst Larry and Gus believed material had to have practical utility to be “information”, an opposing view was put forward by Toby (Y11/B-3/II/87), who argued that all facts, figures and opinions could be useful as they conveyed the thinking of at least one individual at the time of their recording. Thus, although they might be rendered factually inaccurate over time, they still had value. Toby concluded, “Information never goes out-of-date.”

In total, twelve separate strands of meaning were identified in the definitions. When these are compared with the twenty-nine concepts that Levitan (1980: 242-44) has identified in authors’ attempts to address the nature of information, the youngsters’ ideas can be seen to embrace, to some degree, all but eight of them. Levitan is unable to identify a common thread running through her strands, and a similar lack of unity appears here. Indeed some of the informants’ definitions not only appear inconsistent with one another but are almost opposites, for example the manner in which some see information as what is known by an individual and others as what is unknown.

Pitts (1994: 66) defines two different categories of understandings of information: “naive” and “expert”. In the former, the term is perceived to involve “discrete, separate pieces of data, each of which has little effect on the other”, whilst, in the latter, it is considered to be data “organized into conceptual frameworks that contain categorized ideas, with the categories interrelated and useful for different purposes”. The informants’ ideas address only some dimensions of Pitts’s constructs. Whilst the young children especially did indeed believe information to be synonymous with facts or data, no-one articulated whether these were isolated or part of a network. Similarly, the view that information could be used for different purposes was never expressed. Nevertheless, when describing their information needs, several informants outlined how, of their own volition, they broke down a large topic into its aspects that were then addressed individually. According to Bereiter and Scardamalia (1989: 374), such behaviour reflects a realisation that knowledge, or information, possesses a structure and is not merely a collection of facts. Thus, an understanding of networks of information was demonstrated implicitly, rather than explicitly.

4.2 Prevalence of the strands

Figure W lists the strands within the youngsters’ definitions, indicates the range of year groups in which the informants articulated the ideas and offers comments on their frequency.

FIGURE W: PREVALENCE OF STRANDS

| Strand | Range | Frequency |
|---|--------|---|
| “Recognitional” | Y1 | One instance |
| “Need-centred” | Y2-Y13 | Popular among first schoolers, less frequent among middle schoolers and rare among high schoolers |
| “Form-oriented” | Y1-Y13 | Several instances in all phases |
| “Linguistic structure” | Y6 | Two instances |
| “Source-driven” | Y2-Y13 | Popular in all phases |
| “Synonymous” | Y1-Y12 | Popular in all phases |
| “Content-based” | | |
| <i>Unbound subject scope</i> | Y1-Y8 | Several instances among first and middle schoolers |
| <i>In relation to the need</i> | Y5-Y13 | A few instances among middle and high schoolers |
| <i>Information as unknown knowledge</i> | Y1-Y11 | A few instances in all phases |
| <i>Information as known knowledge</i> | Y5-Y7 | Two instances |
| <i>Information as known and unknown knowledge</i> | Y5-Y8 | Three instances |
| <i>Information in relation to activity</i> | Y2-Y9 | A few instances in all phases |
| <i>Aspect coverage</i> | Y1-Y8 | Popular among first schoolers and less frequent among middle schoolers |
| <i>Specific information types</i> | Y4-Y12 | Popular among high schoolers but only one instance in each of first and middle school phases |
| “Illustrative, definition-by-example” | Y1-Y5 | All but one of the several instances were among first schoolers |
| “Action-process” | Y2-Y13 | Popular among first and middle schoolers and less frequent among high schoolers |
| “Semiotic” | Y1-Y13 | Popular among first and middle schoolers and less frequent among high schoolers |
| “Illuminatory” | Y2-Y13 | Rare among first schoolers but more popular among middle and, especially, high schoolers |
| “Use-related” | Y5-Y12 | Two instances |

4.3 Composition of definitions

The youngsters’ definitions of information took two forms:

- a) **elemental**, consisting of only one strand of meaning. Youngsters across all phases offered “elemental definitions”, although the strands they included varied according to their age. Some first schoolers, such as Gerald (Y1/G-1/II/8) and Olivia (Y3/A-1/II/114), simply provided examples of statements of information, whilst others, like June (Y1/C-1/II/57) and Alison² (R-Y2/G-1/FG/1), merely articulated the importance of

a need. Older informants, including Anneka (Y6/D-2/II/19), Cameron (Y7/C-2/II/43), Andrea (Y7/D-2/II/97), Darren⁸ (Y7-Y8/C-2/FG/5) and Ross (Y10/B-3/II/72), sometimes offered just a synonym. The definitions of other participants, usually high schoolers, consisted solely of an “illuminatory” strand, in which the contribution of information to an enhanced knowledge state was elucidated (Jeff, Y9/B-3/II/77, Lesley, Y9/B-3/II/78);

- b) **compound**, combining several strands of meaning. These were more frequent than the “elemental definitions” and were again put forward by informants of all ages. The number of strands within them varied from two to five, although only one youngster included more than four (Candice, Y6/D-2/II/16). A range of elements was combined in these definitions, with the most popular pairing being “source-driven” and “action-process” strands.

4.4 Developmental observations

- a) The youngest children able to define “information”, were in Year One. Among the very youngest informants, the word was generally understood in a highly concrete fashion, and was often expressed in terms of particular facts or areas of knowledge. Some older first schoolers attempted to define “rules” specifying aspects of knowledge that information might address. These were almost always factual. Many suggested that information could cover “anything” and detailed explanations or descriptions were heavily associated with the term. Where it was indicated that information took a certain form, in virtually every case this was text, which conveyed some meaning by “telling” the reader. Again, this meaning usually related to indisputable reality and took the form of Wilson’s (1981: 3) “factual data” or Dervin, Jacobson and Nilan’s (1982: 420) “external information”. Information was frequently understood in terms of a feeling of need on the part of the individual and, for some of the participants, information was that which was unknown to the inquirer. Senior first schoolers, especially, recognised that, not only was information obtained by “finding out”, but specific finding actions, such as “reading”, “looking at” and “asking”, were typically employed. Various words were considered to have a meaning similar to “information”. Youngsters in Years Two to Four often spoke of information being accessible through sources. Pupils from all three year groups listed books, people and electronic materials but, once more, computer-based sources were quoted more often by older children than their junior counterparts.
- b) Among middle schoolers, some characteristics emerging in the first school children remained, others receded or disappeared completely and new patterns were seen. Again, information was equated with a meaning that was “told” and it was frequently associated with sources. Where the latter approach was taken, books, computers and people tended to be those quoted. Information was less often expressed via exemplary statements than by the first schoolers and references to need situations were uncommon. As youngsters’ familiarity with different information forms increased, the idea was articulated on occasion that information could be conveyed in non-textual representations, like pictures and graphs. Some informants also commented that information included both what was known by an individual and what was “new” to him or her, although others viewed information predominantly as the outcome of information-seeking activity. Efforts were still made to form rules indicating areas that information might address. Often these attempts showed little development on those made by first schoolers. Owing to greater linguistic skills,

these older youngsters were, however, better equipped to express the term, “information”, as a synonym and many chose to do so.

- c) High schoolers shared some characteristics of middle schoolers, although features more particular to them can also be identified. Their tendency to indicate different forms and types of information was prevalent. Information was popularly seen to embrace fact and opinion and include pictures and graphs, as well as text. Indeed, Chen and Hernon’s (1982: 5) definition contains several of the elements articulated by a number of high schoolers. The authors describe information as “all knowledge, ideas, facts, data... which are communicated formally and/or informally in any format”. The role of information in relation to a current need situation was seldom expressed and attempts to define rules of what areas information might address were also rare. Employment of synonyms was again common, although the high schoolers employed single words less frequently. Whilst information was still often defined in terms of sources, they were usually spoken of in general terms with specific materials seldom mentioned by name as in the case of the younger pupils. The most significant single pattern lay in the high schoolers’ widespread tendency to discuss information in terms of its effect, i.e. the contribution that it made to one’s state of knowledge. The word, “learning”, which had been almost entirely absent at first school level, except in terms of a need, was widely employed. Overall, there was a shift towards abstract understandings. Pitts (1994: 66) considers that such an emphasis on the role of information in revising a person’s state of knowledge is indicative of an “expert”, rather than “naive”, understanding of the concept of information.

5 INFORMATION ASSOCIATIONS

5.1 Individual strands

Informants made a range of associations with the word, “information”. Many echoed the pictures they had drawn or elements within their definitions. Where youngsters introduced ideas that they had not hitherto addressed, these were analysed in detail. The issues raised related to seven areas.

- a) Disagreement arose as to whether or not fiction could be considered information. Some informants were unequivocal in their beliefs. Tim⁵ (Y5-Y6/C-2/FG/4) asserted that no fiction, including that provided in a book or film, could be regarded as information “because it’s not really a true story”. To Tim, truth was a prerequisite for information. Andrea (Y7/D-2/II/97) and Michelle (Y13/B-3/II/89) took a similar line. In the same way, Jeremy (Y5/C-2/II/28) argued that, as he had never read a poem “that was true”, he did not believe that poetry provided information, and Helena (Y6/D-2/II/20) remarked that movies supplied information only “where they’re based on a true story”.

Other youngsters disagreed. Paula (Y4/A-1/II/118) indicated that story books could provide information if the term was considered to embrace new words “that you hadn’t heard before and you could use them in the future for yourself”. Christine (Y5/C-2/II/47) mused, “Fiction books give us information... Well... kind of... information about what the author dreams up... what the author thinks about... It’s information about what was going round in the author’s head.” Neither youngster, however, believed that the author’s creative ideas were themselves information. Christine’s somewhat tentative stance was mirrored by several other informants. Joan (Y4/C-1/II/52) recognised that her beliefs might not be typical, acknowledging, “Some people look at it a different way but the way I look at it you can get information from fiction books.” She did not outline, however, what form this information might take. Further evidence

of the ties between fiction and information lay in the fact that some youngsters specifically indicated that they associated fiction books with information (Ewan, Y6/C-2/II/42, Clint, Y7/C-2/II/38). Penelope (Y2/C-1/II/55) was perhaps the most extreme advocate of the principle that information could take the form of creative ideas. Not only did she steadfastly maintain that feature films could provide information but she also argued that “music... you hear on your CD” might be construed as information.

- b) Information was considered by some particularly to embrace *new* facts (Mary, Y3/G-1/II/3) or ideas (Duncan, Y12/B-3/II/84).
- c) Information was sometimes understood as integral to certain environments, especially libraries (Diane, Y4/G-1/II/1) and school, in relation either to lessons (Derek, Y2/G-1/II/6, Larry, Y5/C-2/II/26, Candice, Y6/D-2/II/16) or to teachers known to have used the word (Rod³, Y3-Y4/G-1/FG/2, Mary, Y3/G-1/II/3, Austin, Y3/G-1/II/23, Madeleine, Y5/D-2/II/15, Anneka, Y6/D-2/II/19). Here information was thought to be central to the work of these organisations. Furthermore, the word itself might be seen in settings such as computer shops (Judy, Y5/D-2/II/13) and, once more, libraries (Judy, Y5/D-2/II/13, Suzanne, Y6/D-2/II/21).
- d) Information was frequently associated with processes that might be
 - **cerebral**, such as “knowing” (Gavin, Y1/G-1/II/24, Wendy, Y4/C-1/II/53), “thinking” (Victor², R-Y2/A-1/FG/11), “learning” (Derek, Y2/G-1/II/6, Candice, Y6/D-2/II/16), “concentrating” (Benny⁹, Y9-Y11/B-3/FG/8) and “using your brain” (Julia¹¹, Y9-Y11/B-3/FG/8). Wendy, however, argued that what a person knew was not necessarily accurate;
 - **physical**, such as
 - ⇒ *“finding out”* (Derek, Y2/G-1/II/6, Mary, Y3/G-1/II/3, Judy, Y5/D-2/II/13, Anneka, Y6/D-2/II/19);
 - ⇒ *recording*, which might take the form of writing answers to questions (Gerald, Y1/G-1/II/8), copying information that has been discovered (Mary, Y3/G-1/II/3) or writing reports on what has been found out (Kirsty, Y8/D-2/II/99);
 - ⇒ *the more generic act of “working”* (Austin, Y3/G-1/II/23, Larry, Y5/C-2/II/26).
- e) The extent of available information was viewed by Louis (Y8/D-2/II/103) as consistent with levels of technological development. Specifically, he drew attention to the manner in which “the amount of information there is progresses with different evolutions of technology. I mean, the Internet hasn’t always been there”.
- f) Certain information was believed by Kieron (Y7/D-2/II/96) to be particular to a definite point in time and should not be assumed to have a constant value. He argued, “Information... goes with change. It changes. Like, history information can change so the information you [i.e. the researcher] might have got might not be the same as the information I might get.”
- g) The term, “Information Technology”, was employed by only one informant, Gus (Y12/B-3/II/65), who explained how, to him, the word, “information”, immediately evoked the phrase simply because it included the word under scrutiny. The expression, “Information Technology”, was entirely new to all first school informants and none remembered hearing even their teacher use it. In a comment that was typical, Diane (Y4/G-1/II/1) explained, “Our teacher just talks about computers.” In the middle schools, where designated IT or ICT sessions were timetabled, the subject was known invariably by its abbreviation.

5.2 Prevalence of the associations and developmental observations

Some of the associations were more common than others. Whereas those involving changing technology and the passing of time were restricted to single informants, opinions on whether or not fiction could be considered information were expressed in every school phase, although no age-related pattern in the informants' views could be detected. Conversely, perceived links between certain environments and information emerged strongly in upper first and lower middle schoolers. Ties between processes and information were commonly made by informants of a range of ages, although some variations were apparent in the types of processes envisioned by youngsters of different ages. Physical processes were described only by first and middle schoolers, whereas mental processes were articulated at every level. A surprising non-association throughout all phases was the manner in which, for the most part, "information" was not viewed as part of the wider term, "Information Technology".

6 INFORMATION SOURCES AND MEANS OF GAINING INFORMATION

6.1 Methods

The youngsters as a whole identified many ways of gaining information. These might be divided into four broad groups - solitary methods, unstructured observation and experiments, use of environmental sources and use of acknowledged information sources:

- a) **solitary methods**, in which an individual uses his or her own mental resources unaided and no external stimulus is provided. Two different processes were described:
 - ***reflective thinking***. Miranda (R/G-1/II/11) believed that information could be gained "just by thinking yourself" and drew attention to how this was often advocated by her teacher;
 - ***use of own imagination***. Maggie (Y1/A-1/II/119) considered the creative use of one's brain to be a possible approach for gaining information;
- b) **unstructured observation and experiments**, through which information is gained by individuals engaging with the world around them. Diane (Y4/G-1/II/1) described observation in rudimentary fashion, "You could just go somewhere and pick up information, like in woods," simply through close attention. A similar method was suggested by Linda (Y7/C-2/II/36), again in relation to the world at large: "You can go out and find a place where you've never been before and, like, see what you see." Greg (Y9/B-3/II/76) recognised the value of observation in relation to living creatures: "You can get information from an animal about how it reacts and stuff by watching." Nigel (Y5/C-2/II/29) understood observation more generally: "If you look at something and you notice something you wouldn't normally notice, it... goes into your head." The more structured processes of scientific experimentation and testing emerged less frequently. Although able to describe one such example in some detail, Piers (Y5/D-2/II/104) did not see information obtained in this way as the product of a generic process. He merely said, "You can take out a sample, one of the samples from the ground, and take it to one of these information places, give it to them and they could tell you what's in it, how much of something there is."

For Diane, Linda, Greg, Nigel and Piers, the processes of observing and testing were simply methods of gaining information. They did not appreciate that the origin of much factual information could be traced to the application of these techniques. Kieron (Y7/D-2/II/96), however, described how "you discover" information. He explained, "You might find something in the ground and you have this special stuff... It

can be used for nuclear bombs and stuff... Anyway, it dates it.” It later became apparent that Kieron was attempting to describe dating techniques involving carbon¹⁴. One focus group (Y7-Y8/C-2/FG/5) considered the origin of information in detail and identified a backward chain from its access by ordinary people to its initial discovery. Pamela⁸ considered that the explanation that information “came from computers” was inadequate as it failed to acknowledge that the material within the computer “had to come from people first”. Pamela and her colleagues eventually concluded, “Information really starts with experiments.” Younger children were less successful in tracing information to its origins, even within focus group situations. Although John³ (Y3-Y4/G-1/FG/2) indicated that “archaeologists... find bones and get information off the bones, like predict how far... how many years it goes back”, he failed to suggest how archaeologists could find out such details. Similarly, Carol³ (Y3-Y4/G-1/FG/2) described how “people in banks... can get information off computers, like how much money you’ve got” but, unlike Pamela’s group, she did not speculate on the origin of the computer’s information.

The contributions made by youngsters in groups (a) and (b) above differed significantly from those of their colleagues in that they emphasised process, whilst others were predominantly concerned with sources and little coverage was given of people’s interaction with them.

c) **use of environmental sources.** These may be understood as materials in the world at large that convey, usually through pictures or text, meaning to an onlooker. They are not sources in the sense of books or computers and are often merely seen incidentally, rather than examined closely. Their content is usually narrow and brief. Where they are deliberately consulted, the context of their use is generally limited and they are frequently looked at simply for quick reference purposes. In some cases the informants had not themselves consciously consulted them and their familiarity with them was the result simply of their presence in areas well known to the youngsters. The environmental sources articulated by the informants fell into three categories:

- *signs*, including those around school (Isaac, Y5/D-2/II/101) and roadsigns (Kenneth, Y3/C-1/II/48, Jim, Y5/D-2/II/100);
- *labels*, such as those on food listing the ingredients (Dudley⁶, Y5-Y6/D-2/FG/3), food warning labels relating to nut content (Christine, Y5/C-2/II/47), price labels (Isaac, Y5/D-2/II/101), labels indicating different areas of libraries (Gillian⁵, Y5-Y6/D-2/FG/3) and labels of exhibits within a museum (Frank⁵, Y5-Y6/D-2/FG/3);
- *posters*, such as advertisements for museums (Hilary, Y6/D-2/II/18) and instructions on “what to do and what not to do” in public swimming pools (Hilary, Y6/D-2/II/18);

d) **use of acknowledged information sources**, including paper-based, technology-based, organisations/places and other people. Some informants also described information-providers on the basis of their form:

- *paper-based*

⇒ *books* (Gavin, Y1/G-1/II/24, Josie, Y2/A-1/II/110, Curtis, Y3/A-1/II/115, Joe, Y3/C-1/II/50, Mary, Y3/G-1/II/3, Austin, Y3/G-1/II/23, Fiona⁴, Y3-Y4/A-1/FG/12, Joan, Y4/C-1/II/52, Wendy, Y4/C-1/II/53, Christine, Y5/C-2/II/47, Judy, Y5/D-2/II/13, Vanessa, Y5/D-2/II/14, Jim, Y5/D-2/II/100, Pauline, Y6/C-2/II/30, Dudley⁶, Y5-Y6/D-2/FG/3, Linda, Y7/C-2/II/36, Clint, Y7/C-2/II/38, Eric, Y8/C-2/II/41, Frida, Y9/B-3/II/63, Jeff, Y9/B-3/II/77, Keith, Y10/B-3/II/83, Petra¹¹, Y9-Y11/B-3/FG/8, Alec, Y11/B-3/II/71, Harrison, Y12/B-3/II/85, Maurice, Y13/B-3/II/86). Some young

children conveyed the concept of non-fiction books in their natural language. June (Y1/C-1/II/57), for example, talked of "books that tell you about things". Nevertheless, the established term, "non-fiction", was used by another of a similar age (Francesca, Y2/G-1/II/5) as well as by older informants.

Books of various types were regarded as information providers, with dictionaries (Rupert, Y1/C-1/II/59, Victor², R-Y2/A-1/FG/11, Edgar, Y2/A-1/II/111, Barry, Y2/A-1/II/112, Christine, Y5/C-2/II/47, Nina, Y5/D-2/II/17, Suzanne, Y6/D-2/II/21, Dirk, Y7/D-2/II/94) quoted more often than any other type of book. The information that dictionaries were considered to offer varied. Victor noted how they provide word meanings but did not comment on their use for spellings. Conversely, Barry did not mention meanings but indicated how dictionaries "give you information on how to write words". Some comments by younger children were ambiguous and might have resulted from a lack of clear understanding. Edgar, for example, indicated that dictionaries "help us to find the words you want". Rather than describing dictionaries in terms of the types of information they offered, Dirk drew attention to the amount of information available from them, arguing that "you can get... small things from dictionaries".

Other specific types of book mentioned were encyclopedias (Joe, Y3/C-1/II/50, John³, Y3-Y4/G-1/FG/2, Wes, Y4/C-1/II/51, Naomi, Y5/D-2/II/12, Petra¹¹, Y9-Y11/B-3/FG/8), "question and answer books" (Nigel, Y5/C-2/II/29), thesauri (Christine, Y5/C-2/II/47), "history books" (Jeremy, Y5/C-2/II/28, Nina, Y5/D-2/II/17, Kevin, Y7/D-2/II/95), subject books, which Dirk (Y7/D-2/II/94) defined as "separate books on different things", and books accompanying products (Christian, Y4/G-1/II/2). In relation to product-oriented books, Christian explained, "I've got an Intel 64. I got this new game and I didn't know anything about it and you get this little booklet and it gives you information about it." For Rick⁷ (Y7-Y8/D-2/FG/10), books of a certain size, as well as type, came to mind. He elaborated, "When I think of knowledge books, I think of encyclopedias - real thick things with several thousand pages." Francesca (Y2/G-1/II/5) considered that "information texts" were a particular form of book. She described them as "*big* books that we use at school". Whilst she was the only first schooler to talk of books particular to school, several high schoolers (Frida, Y9/B-3/II/63, Zoe, Y9/B-3/II/79, Julia¹¹, Y9-Y11/B-3/FG/8) specifically drew attention either to school textbooks or to revision guides. For Michelle (Y13/B-3/II/89), as far as her education was concerned, the type of volume regarded as an information book depended on the need. "It all depends on what course you're doing," she explained, outlining how she believed the specific texts that she and her colleagues would consider information books would be those they used as part of their studies. Although encyclopedias were mentioned by informants at every school phase, generally the older the informants the greater the diversity of information books quoted. Indeed, only high schoolers referred to instructional books (which Lesley, Y9/B-3/II/78, described as "books that tell you how to do something"), autobiographical books, such as "Mein Kampf" (Harrison, Y12/B-3/II/85), and atlases (Ed⁹, Y9-Y11/B-3/FG/8). Ed's citing of atlases must also be understood in terms of his wider views as to what constitutes information, which he had earlier defined as "text and pictures".

For some young informants certain parts of books were particularly considered to provide information. Josie (Y2/A-1/II/110) believed that “the contents page and the index tell you quite a lot of information”. Sally² (R-Y2/A-1/FG/11) and Victor² (R-Y2/A-1/FG/11) also drew attention to contents lists and indexes in books respectively. All three youngsters again equated information with hard facts. Dudley⁶ (Y5-Y6/D-2/FG/3), the oldest youngster to highlight a particular part of a book, described how “at the back it gives you information about stuff that’s in it”;

⇒ *newspapers and magazines*. Newspapers were suggested by Kevin (Y7/D-2/II/95), Bob (Y9/B-3/II/64), Harrison (Y12/B-3/II/85) and Antony (Y13/B-3/II/74), and magazines by Dennis (Y8/C-2/II/40). In Antony’s case his reference to newspapers was part of his wider view that information was provided by the mass media;

⇒ *maps* (Jim, Y5/D-2/II/100);

⇒ *leaflets*. Whilst Lynne (Y3/C-1/II/49) indicated that leaflets generally provided information, Gerald (Y1/G-1/II/8) especially associated them with hotels;

- *technology-based*

⇒ *computers*, which, with books and other people, formed one of the three most frequently quoted sources of information. They were mentioned by Karen (Y1/G-1/II/7), Daisy² (R-Y2/C-1/FG/7), Corey³ (Y3-Y4/A-1/FG/12), Maria³ (Y3-Y4/A-1/FG/12), Curtis (Y3/A-1/II/115), Will⁴ (Y3-Y4/A-1/FG/12), Dominic (Y4/A-1/II/116), Paula (Y4/A-1/II/118), Kylie⁴ (Y3-Y4/C-1/FG/6), Siobhan⁴ (Y3-Y4/C-1/FG/6), Wendy (Y4/C-1/II/53), Christine (Y5/C-2/II/47), Bridget⁵ (Y5-Y6/D-2/FG/3), Naomi (Y5/D-2/II/12), Judy (Y5/D-2/II/13), Vanessa (Y5/D-2/II/14), Madeleine (Y5/D-2/II/15), Pauline (Y6/C-2/II/30), Helena (Y6/D-2/II/20), Clint (Y7/C-2/II/38), Cameron (Y7/C-2/II/43), Douglas (Y7/D-2/II/93), Dirk (Y7/D-2/II/94), Zoe (Y9/B-3/II/79), Emily (Y10/B-3/II/82), Keith (Y10/B-3/II/83), Craig (Y11/B-3/II/88) and Marcus (Y13/B-3/II/92). Sometimes the information-providing ability of the computer was traced to a particular element, such as the “Encarta” CD-ROM disc (Siobhan⁴, Y3-Y4/C-1/FG/6, Madeleine, Y5/D-2/II/15, Helena, Y6/D-2/II/20), the Internet (Kylie⁴, Y3-Y4/C-1/FG/6, Bridget⁵, Y5-Y6/D-2/FG/3, Cameron, Y7/C-2/II/43, Douglas, Y7/D-2/II/93, Emily, Y10/B-3/II/82, Craig, Y11/B-3/II/88, Marcus, Y13/B-3/II/92) or both (Suzanne, Y6/D-2/II/21). An unexpected feature of several high schoolers’ articulations lay in how they spoke of “computers *and* the Internet”. Whereas many of the younger children assumed the term, “computer”, to embrace the Internet, some teenagers, including Emily, Craig and Marcus, envisioned the Internet as a separate, and additional, structure.

The issue of whether or not all computers could be considered to supply information was investigated among first and middle school informants. Maria³ (Y3-Y4/A-1/FG/12) and Dominic (Y4/A-1/II/116) indicated that computers which did not provide access to the Internet could not be regarded as information sources. Paula’s (Y4/A-1/II/118) view was slightly broader, as she indicated that information-providing computers had to be equipped with either Internet access or CD-ROM facilities or both. Nina (Y5/D-2/II/17) concurred with the argument that not all computers could offer information, although she was more vague about what was required by a computer if it were to have information-providing potential. She mused, “You can get information from some computers but not every computer. Some computers have this special information thing

that tells them to give people information... It might be a disc or something. I have a computer but it's not an information one." Corey³ (Y3-Y4/A-1/FG/12), however, could not support the argument that computers had to have Internet or CD-ROM capability in order to provide information. He drew attention to the fact that "old computers which were in the War" had supplied information "cos they used them to crack codes". Corey's view that neither Internet nor CD-ROM capability was a prerequisite for information provision on the part of a computer was a minority stance, however, and in his case derived from an exceptional situation that was known to him. Linda (Y7/C-2/II/36) was among the few to share a similar view. "Any kind of computer can give information," she asserted.

The youngest children, although familiar with computer hardware, were oblivious to its information-providing potential, possibly as they were limited in their own use of it. Chantal^R (R-Y2/G-1/FG/1) talked only of how she had prepared her birthday party invitations on the computer, and Elizabeth^R (R-Y2/G-1/FG/1) used her father's system solely to "send him a message at work". The limitations of Clark²'s (R-Y2/G-1/FG/1) knowledge of computers were different, however. He was familiar with the Internet and spoke animatedly about how "if you don't want to go out... or you're too old... you could just shop on the Internet" but he was unaware that it could provide information. Although he had no home Internet access, Edgar (Y2/A-1/II/111) recognised its potential in this regard but believed it to be inappropriate for children. He indicated, that the Internet is "a little bit of the computer that tells you things... but it's more for big people than little people". Daisy² (R-Y2/C-1/FG/7), a child of similar age to Edgar, had a different opinion as she explained the suitability of the Internet for providing information for children in terms of the "Ask Jeeves" Web site. Several first schoolers (Gavin, Y1/G-1/II/24, Derek, Y2/G-1/II/6, Kenneth, Y3/C-1/II/48, Mary, Y3/G-1/II/3) recognised the word, "Internet", or even introduced it into the dialogues, but were unable to explain the term further;

- ⇒ *community information points*. The GOSIP (General On Street Information Point) terminal in Newcastle was the only item of this kind discussed. Wes (Y4/C-1/II/51) described it as "a place where they've got computers, telling you information about the city, where things are". Francis⁸ (Y7-Y8/D-2/FG/10) pinpointed its position precisely, recalling, "In Newcastle, up the main street near Fenwick's and where the Virgin Megastore is there's a small ring of computers outside which give you information";
- ⇒ *television and video*. Some youngsters asserted that television in general provided information (Will⁴, Y3-Y4/A-1/FG/12, Kevin, Y7/D-2/II/95, Duncan, Y12/B-3/II/84, Antony, Y13/B-3/II/74), whereas others specified particular types of broadcast, including general news transmissions (Daisy², R-Y2/C-1/FG/7, Maria³, Y3-Y4/A-1/FG/12, Gillian⁵, Y5-Y6/D-2/FG/3, Helena, Y6/D-2/II/20), children's news programmes, such as "Newsround" (Tim⁵, Y5-Y6/C-2/FG/4), weather forecasts (Corey³, Y3-Y4/A-1/FG/12), the genre of documentaries (Dennis, Y8/C-2/II/40), documentaries devoted to subjects such as "history or the planets" (Louis, Y8/D-2/II/103), "nature programmes" (Harvey, Y6/C-2/II/33), "what you get on 'The Discovery Channel'" (Malcolm⁶, Y5-Y6/C-2/FG/4) and "what they show on 'The History Channel'" (Lionel, Y8/D-2/II/102). Some informants associated particular channels with certain subjects. Malcolm, for example, indicated

that programmes on “The Discovery Channel” were “often about animals”. Where certain types of programmes were indicated, two key characteristics emerged. Firstly, they offered either established facts or informed speculation about the subject in question and, secondly, they were purposely watched by the audience. Len¹ (R-Y1/C-1/FG/7) identified TV advertisements as a source of information. As these are persuasive and seldom deliberately viewed, they are clearly of a different character. Penelope (Y2/C-1/II/55), Will⁴ (Y3-Y4/A-1/FG/12), Sandra⁶ (Y5-Y6/C-2/FG/4) and Helena (Y6/D-2/II/20) also drew attention to video recordings, with Sandra specifically indicating those that she had seen in History lessons;

⇒ *radio* was quoted less than television as an information provider, although it was mentioned by Nicholas² (R-Y2/C-1/FG/7) and Kevin (Y7/D-2/II/95). For Duncan (Y12/B-3/II/84) and Antony (Y13/B-3/II/74), “the media” generally, which they defined as including radio, fulfilled an information-providing role;

⇒ *calculators*. Curtis (Y3/A-1/II/115) considered calculators to be an information tool, arguing that they “give us information about numbers”. The manner in which Curtis had formulated a “rule” quite clearly in relation to calculators, i.e. they provide information of a particular type, was mirrored in a range of other contexts addressed by the first schoolers. Curtis’s rule is similar, for example, to Barry’s (Y2/A-1/II/112) assertion that dictionaries “give you information about words”;

⇒ *telephones*. Ian⁴ (Y3-Y4/G-1/FG/2) explained how his father’s mobile phone supplied him with information such as the numbers of friends and colleagues and also instructions on how to delete unwanted numbers. Here the information offered by the telephone was highly limited as it related solely to the tool itself;

- ***organisations and places***

⇒ *schools*. Schools were seen to provide information by offering access to materials, such as books (Joe, Y3/C-1/II/50) and “writing that you find in books” which might be exhibited around the classroom in displays (Rupert, Y1/C-1/II/59), and to people such as teachers (Vanessa, Y5/D-2/II/14, Madeleine, Y5/D-2/II/15, Candice, Y6/D-2/II/16, May, Y7/C-2/II/34, Gail, Y7/C-2/II/37, Ross, Y10/B-3/II/72). For Wendy (Y4/C-1/II/53), the act of “working” within school involved information acquisition;

⇒ *libraries*. Youngsters seldom differentiated between library types. “Libraries” generally were mentioned by Joe (Y3/C-1/II/50), Fiona⁴ (Y3-Y4/A-1/FG/12), Dominic (Y4/A-1/II/116), Madeleine (Y5/D-2/II/15), Jim (Y5/D-2/II/100), Pauline (Y6/C-2/II/30), Clint (Y7/C-2/II/38) and Glynis (Y10/B-3/II/81). Nevertheless, Louis (Y8/D-2/II/103) specifically indicated “public libraries”. In each case it was the books within the building that were considered to form the actual information sources;

⇒ *museums*. After schools and libraries, museums were mentioned more than any other organisation. They were quoted by June (Y1/C-1/II/57), Nicholas² (R-Y2/C-1/FG/7), Sasha (Y4/A-1/II/117), Wendy (Y4/C-1/II/53) and Vanessa (Y5/D-2/II/14) and were of a range of types, Wendy associating them with natural history and June with science. Vanessa, the oldest of the four informants, outlined how museums mostly dealt with “things that happened in the past”;

⇒ *Tourist Information Centres* (Rose⁶, Y5-Y6/D-2/FG/3);

- ⇒ *"information booths"* at particular tourist attractions (Christine, Y5/C-2/II/47). These were seen to provide information about the place being visited;
- ⇒ *news agencies*. Olivia (Y3/A-1/II/114) indicated that information could be obtained from organisations producing newspapers. She drew particular attention to that responsible for the free, local newspaper read by her family;
- ⇒ *bookshops* (Bridget⁵, Y5-Y6/D-2/FG/3, Naomi, Y5/D-2/II/12);
- ⇒ *unspecified shops*. Clark² (R-Y2/G-1/FG/1) indicated how "you can just go into a shop and ask where to go". The goods sold by the shop were immaterial. As was typical of the younger informants, Clark had a concrete grasp of a situation in which use might be made of such a shop and the event he described was based on his experience of an organisation that was familiar and everyday;
- ⇒ *travel offices*, like that within a nearby railway station (Kenneth, Y3/C-1/II/48);
- *other people*. Although some informants believed "other people" generally to be information sources (Harvey, Y6/C-2/II/33, Anneka, Y6/D-2/II/19, Andrea, Y7/D-2/II/97, Norman, Y8/D-2/II/106, Bob, Y9/B-3/II/64), others were more specific. Francesca (Y2/G-1/II/5), Will⁴ (Y3-Y4/A-1/FG/12), Gail (Y7/C-2/II/37), Louis (Y8/D-2/II/103), Julia¹¹ (Y9-Y11/B-3/FG/8), Jean (Y11/B-3/II/70) and Michelle (Y13/B-3/II/89) drew attention to parents, Louis (Y8/D-2/II/103), Julia¹¹ (Y9-Y11/B-3/FG/8), Tessa (Y13/B-3/II/75) and Liana (Y13/B-3/II/90) to friends, Ross (Y10/B-3/II/72) to peers and Karen (Y1/G-1/II/7) to "people who visit the place where you live". Whilst youngsters of all phases believed parents to provide information, friends were suggested by only upper middle and high schoolers. Informants of various ages highlighted the role of experts. Such people fell into one or more of four broad groups:
 - ⇒ *resource-based experts*, whose information is derived from sources available to them. These individuals may be regarded as "information custodians" and may not necessarily possess knowledge themselves. Carol³ (Y3-Y4/G-1/FG/2) described how "people who work in banks" have access to financial information shown on computer screens;
 - ⇒ *ex-officio experts*, whose knowledge has been gained as a result of their occupation. Some such experts may be considered societal "wise men" with knowledge across many disciplines. They include teachers (Len¹, R-Y2/C-1/FG/7, Gerald, Y1/G-1/II/8, Josie, Y2/A-1/II/110, Barry, Y2/A-1/II/112, Paula, Y4/A-1/II/118, Piers, Y5/D-2/II/104, Cathy Y6/C-2/II/32, Bill, Y7/C-2/II/39, Kirsty, Y8/D-2/II/99, Norman, Y8/D-2/II/106, Bob, Y9/B-3/II/64, Scarlett, Y10/B-3/II/80, Julia¹¹, Y9-Y11/B-3/FG/8, Tessa, Y13/B-3/II/75, Michelle, Y13/B-3/II/89) and library staff (Bill, Y7/C-2/II/39), whilst the knowledge of others, such as archaeologists (John³, Y3-Y4/G-1/FG/2), doctors and nurses (Vicky⁴, Y3-Y4/G-1/FG/2, Barbara, Y4/G-1/II/22), scientists (Colin⁴, Y3-Y4/G-1/FG/2, Christian, Y4/G-1/II/2) and telephone operators (Helena, Y6/D-2/II/20), may be considered to lie in narrower domains. Younger children once more generally explained their understanding of subject experts as information providers in terms of specific examples. Barry (Y2/A-1/II/112), for instance, indicated that information on flight could be obtained by asking "someone in an airport or a pilot who would know", and Josie (Y2/A-1/II/110) believed that a wildlife park employee she met whilst on holiday also qualified as an expert, since he was able to give visitors guided tours and answer questions relating to the animals in his care;

- ⇒ *educated experts*, who, again, have developed substantial knowledge, although here not as a result of their employment. Olivia (Y3/A-1/II/114) and Damien⁴ (Y3-Y4/A-1/FG/12) described how a specialised knowledge of a subject might be gained simply by conducting a detailed study;
- ⇒ *experts by age*, whose knowledge has been accumulated simply through life experience. To Jeremy (Y5/C-2/II/28), anyone of a certain age could be considered an expert. He commented that “anyone who’s at least twenty is going to know quite a bit more than me”. In the same way, Dominic (Y4/A-1/II/116) drew attention to the knowledge of people of his grandmother’s generation. He rationalised, “They’ve been around longer and they’ve probably learnt more” than people of his own age.

Some adults were seen to have special status simply because they had experienced particular events. Olivia (Y3/A-1/II/114) explained that her grandmother “lived in the Second World War and has seen two eclipses”. Kirsty (Y8/D-2/II/99) drew attention to the contribution that the elderly can make in providing oral history as a result of their longevity, and Clint (Y7/C-2/II/38) outlined how grandparents living through the Second World War could be a major information resource for anyone researching the event. In terms of younger experts, Bill (Y7/C-2/II/39) believed that older brothers who “might have done the subject when they were at school” could be experts in certain curriculum content. Glynis (Y10/B-3/II/81) indicated that people of different ages could be experts in relation to different needs. Where a subject pertained to teenagers, friends might form an appropriate source but if the matter “affected people twenty years ago or something you ask people who were involved with it then, like your parents”.

In all cases experts by age may be regarded as “accidental experts” in that, unlike people within the other categories, they have made no attempt to accumulate knowledge in the area in which they are considered expert.

Although generally youngsters showed some insight into the origin of a person’s store of information, in the only instance of its type Francis⁸ (Y7-Y8/D-2/FG/10), who considered that information providers included “the woman at a desk at the entrance to Eldon Square [a local indoor shopping centre]”, was unable to comment further on either her status or the information she might dispense. Her prominent physical location had aroused his attention and he assumed she must occupy be an official position, which, in turn, he associated with information;

- *forms*. This category refers to types of materials across a variety of sources and thus it differs in character from the previous groups. Joan (Y4/C-1/II/52) asserted that “you can get information from pictures by looking at them”. She then identified two particular types of “information pictures” - those in an art gallery, “especially when they’re painted of towns”, and diagrams. The latter may, of course, be found in sources of different types;
- e) *use of repackaged information sources*, in which information found in particular books has merely been copied and represented. Gavin (Y1/G-1/II/24) described how this might be done by children at home and, if displayed on bedroom walls, could be seen by visitors;
- f) *use of “personal” information records*, where ideas, observations or discoveries are recorded for subsequent use either by the writers themselves or their family or friends. Records of this type include

letters (Karen, Y1/G-1/II/7, Sally², R-Y2/A-1/FG/11), postcards (Sally², R-Y2/A-1/FG/11) and notes of famous scientists, such as Einstein (Pauline, Y6/C-2/II/30);

g) use of “accidental” information sources. This method involves consultation of materials not intended as information sources and originally produced for another purpose. Pauline (Y6/C-2/II/30) indicated how information could be obtained from the exercise books of past pupils, and Mary (Y3/G-1/II/3) outlined how information might be gained from a story written by a classmate. Here, the intention of the producers of the work was merely to satisfy their teachers.

6.2 Prevalence of the behaviours

Figure X lists the types of behaviour suggested by the informants, indicates the range of year groups in which the youngsters articulated the ideas and offers comments on their frequency.

FIGURE X: PREVALENCE OF BEHAVIOURS

| Behaviour | Range | Frequency |
|--|--------|---|
| Solitary methods | R-Y1 | Two instances |
| Unstructured observation and experiments | Y4-Y9 | Several instances among middle schoolers but only one in each of the first and high school phases |
| Use of environmental sources | Y3-Y6 | All but one of the several instances were among middle schoolers |
| Use of acknowledged information sources | | |
| <i>Paper sources</i> | | |
| <i>books</i> | Y1-Y13 | Popular in all phases |
| <i>newspapers and magazines</i> | Y7-Y13 | A few instances among middle and high schoolers |
| <i>maps</i> | Y5 | One instance |
| <i>leaflets</i> | Y1-Y3 | Two instances |
| <i>Technology-based sources</i> | | |
| <i>computers</i> | Y1-Y13 | Popular in all phases |
| <i>community information points</i> | Y4-Y8 | Two instances |
| <i>television and video</i> | Y1-Y13 | Several instances among first and high schoolers but most popular among middle schoolers |
| <i>radio</i> | Y2-Y13 | A few instances in all phases |
| <i>calculators</i> | Y3 | One instance |
| <i>telephones</i> | Y4 | One instance |
| <i>Organisations</i> | | |
| <i>schools</i> | Y1-Y10 | All but one of the several instances were among first and middle schoolers |
| <i>libraries</i> | Y3-Y10 | All but one of the several instances were among first and middle schoolers |

| | | |
|---|--------|--|
| <i>museums</i> | Y1-Y5 | All but one of the several instances were among first schoolers |
| <i>Tourist Information Centres</i> | Y6 | One instance |
| <i>"information booths"</i> | Y5 | One instance |
| <i>news agencies</i> | Y3 | One instance |
| <i>bookshops</i> | Y5 | Two instances |
| <i>unspecified shops</i> | Y2 | One instance |
| <i>travel offices</i> | Y3 | One instance |
| <i>Other people [in general]</i> | Y6-Y9 | All but one of the several instances were among middle schoolers |
| <i>parents, friends, peers and house visitors</i> | Y1-Y13 | Several instances among first and middle schoolers but most popular among high schoolers |
| <i>experts</i> | Y1-Y13 | Popular in all phases |
| Use of repackaged information sources | Y1 | One instance |
| Use of "personal" information records | Y2-Y6 | All but one of the several instances were among first schoolers |
| Use of "accidental" information sources | Y2-Y6 | Two instances |

6.3 Developmental observations

Books, computers and other people were widely quoted as information sources by informants across all school phases. The youngest children, however, were often unable to identify any further providers. Francesca (Y2/G-1/II/5) mentioned only books and other people; Edgar (Y2/A-1/II/111) could think of nothing beyond "computers, the Internet and dictionaries"; Austin (Y3/G-1/II/23) considered that all that could be done to find information was to look "in a book". Even some middle schoolers had very restricted ideas of what could offer them information. Madeleine (Y5/D-2/II/15), for example, talked of just books and computers. Such a restricted variety appears the result of either a very narrow range of first-hand experience on the informants' part or an inability to recall, so as to satisfy the researcher's question, the sources that they had seen or used themselves. Informants better equipped in relation to these areas were generally, although not always, older participants. Several of the sources in the wider range indicated were environmental and had been seen in the world at large. Kenneth (Y3/C-1/II/48), Jim (Y5/D-2/II/100), Isaac (Y5/D-2/II/101) and Hilary (Y6/D-2/II/18) all recognised a diversity of information-providing materials and brainstormed for the researcher as many as they could in the moments available to them. Some middle schoolers were also able to identify the origins of information.

High schoolers often pursued an approach considerably different and more open than their younger counterparts. Some, like Greg (Y9/B-3/II/76), believed that potential sources of information were virtually limitless. The materials they identified were illustrative, rather than intended to form a comprehensive list. The temptation prevalent among younger informants to attempt to mention all information sources known to them was no longer apparent. When specific sources were quoted, these were more diverse than those identified by younger participants, although many of them, such as friends, study guides and class textbooks, continued to reflect their own information encounters. The quoting of friends might also be attributed to the wider social importance of the peer group within the life of a teenager. Another significant characteristic was the tendency

of some youngsters, like Duncan (Y12/B-3/II/84) and Antony (Y13/B-3/II/74), to think in terms of groups of sources, such as “the media”, rather than isolated materials.

6.4 Types of information from sources

When discussing how information might be obtained, the researcher’s paramount concern lay in investigating sources and methods. Some youngsters, however, also indicated types of information that certain materials might provide. The areas they identified are addressed below:

a) **facts**. These may be considered to fall into five groups:

- **subject knowledge** relating to the world beyond the informant’s immediate situation and environment. John³ (Y3-Y4/G-1/FG/2) suggested how archaeologists could obtain information about the past via “old bones”, and Colin⁴ (Y3-Y4/G-1/FG/2) spoke of how scientists could convey to the public “what’s happened over the years”. Vanessa (Y5/D-2/II/14) and Gail (Y7/C-2/II/37) reported that much work at school involved the acquisition of facts associated with particular curriculum subjects;
- **personal data**, providing precise details pertaining to an individual, such as the amount of money held in a bank account (Carol³, Y3-Y4/G-1/FG/2);
- **situation-specific information**, where the stated details were relevant only to a person in a given situation. For example, information about the road being used by a driver is offered by the signs that border it (Kenneth, Y3/C-1/II/48, Jim, Y5/D-2/II/100);
- **product-specific information**, in which the details provided are relevant only to the user or potential user of a certain product, such as the ingredients in food (Dudley⁶, Y5-Y6/D-2/FG/3). Some information, such as that relating to nut content of food, may take the form of a warning (Christine, Y5/C-2/II/47);
- **information for skill development**, which Francesca (Y2/G-1/II/5) considered could address matters like cooking a particular meal, riding a bicycle or producing legible handwriting. She realised that information on the first matter could be obtained from books, whereas that concerning the other areas would be given via other people. Interestingly, Francesca believed the need for skill-related information to lie entirely with people who are “quite young”. A knowledge of how to find one’s way from place to place may also be considered a variety of skill-related information. Clark² (R-Y2/G-1/FG/1) described a scenario in which a person might seek directions relating to a locality by visiting a shop and asking an assistant;

b) **advice** from people such as teachers, who might guide their pupils on, for example, the action that should be taken when approached by a stranger (Vicky⁴, Y3-Y4/G-1/FG/2). May (Y7/C-2/II/34) also indicated in a general context that teachers might provide advice;

c) **instructions** of a range of kinds and in a variety of circumstances. Often the situations quoted involved a senior and a subordinate. Karen (Y1/G-1/II/7) explained how information could take the form of “bosses at work” asking employees, via computer, to complete given tasks, and Chantal^R (R-Y2/G-1/FG/1) described how a teacher might stipulate the area of the school yard in which pupils were expected to play. Some instructions, however, were less specific in terms of the targeted group. Hilary (Y6/D-2/II/18) believed that information might address “what to do and what not to do” in the local swimming baths, and Jim (Y5/D-2/II/100) held a similar view in the context of instructions provided on road signs. In these cases the

- information was expressed as rules rather than instructions. Other instructions were specific to individual products, such as mobile phones (Ian⁴, Y3-Y4/G-1/FG/2) and computer games (Christian, Y4/G-1/II/2);
- d) **visionary ideas**, in which new, highly subjective or creative ideas might be conveyed by “prominent people” through channels such as speeches (Duncan, Y12/B-3/II/84);
- e) **problem solving data**. Information might be generated to solve a particular problem. Corey³ (Y3-Y4/A-1/FG/12) described how information could take the form of data to break codes.

7 CROSS-ELEMENT ANALYSIS

All transcripts were examined in relation to six elements: reading and recognition of the term, “information”, the picture-based understandings, the use of the word, “information”, in youngsters’ own articulations, the explicit definitions, the information associations and the identified information sources and means of gaining information. Although some of these elements might be considered to address different aspects of young people’s understanding of the term, “information”, occasions emerged when the data volunteered by the informants in one part of the dialogues also embraced issues addressed by the youngsters in other parts. Where this was the case all the relevant data was examined for both unity of theme and inconsistency.

7.1 Corroborated patterns

Four cross-element themes that emerged are described below.

- a) The tendency of informants, especially those in the younger half of the sample, to equate information with facts emerged as a key theme in the attitude of some participants to the picture task, in youngsters’ unprompted use of the term, in various strands of the definitions, in the informants’ descriptions of book contents pages/indexes and factual television programmes as information sources and in the types of information considered to be provided by named sources. If Liesener (1985: 16) is to be believed, such a pattern could result from the context in which the term, “information”, is employed in schools where, he asserts, the word as used “seems only to include ‘nonfiction’ or ‘fact books’ and does not include every form of expression of ideas including fiction”. According to Chelton (1985: 23) such an attitude is held not only by school staff but also by librarians with responsibility for young adults.

Data from multiple elements showed that information was also seen to take the form of advice, although this was less frequent than the tendency to associate information with facts. When informants indicated the types of information that were provided by particular sources which they had quoted, a much greater diversity was apparent, however, than had emerged in other parts of the dialogues. Here, “information” was believed to include instructions, visionary ideas and problem solving data as well as facts and advice.

- b) The inclination of the youngsters to regard books and computers as key information sources was particularly evident in the pictures drawn in response to the word, “information”, in informants’ unprompted use of the term, in the “source-driven” strand of the definitions and in the descriptions of sources that might provide information.

A further pattern lay in the fact that many first and middle schoolers, when associating information with books covering particular areas, quoted specifically those relating to history. Perhaps this can be attributed to the possibility that much of youngsters’ work at school with non-fiction books involved their

use in relation to this subject. Certainly consultation of the schemes of work for the forms from which all the first schoolers indicating a tendency to link non-fiction books with history had been drawn revealed that major projects in this curriculum area either were being tackled at the time of the fieldwork or had recently been completed. Much of this work did indeed involve the use of subject books.

The combined data offered in the “source-driven” definitions and in the descriptions of information sources suggests that other people are also viewed as major providers. Nevertheless, this theme was less apparent in the youngsters’ pictures and in their unprompted use of the word, “information”. The unexpectedly low representation of people in the pictures was detected at an early stage in data collection. When asked if she could help explain the pattern, Pamela⁸ (Y7-Y8/C-2/FG/5) suggested, “Well, people are harder to draw.” The fact that people were quoted in relation to other elements much more frequently as providers increases the likelihood of Pamela’s attitude being typical. Perhaps people were not drawn simply because alternative sources were less challenging for the youngsters to depict. Nevertheless, this explanation runs contrary to findings by Newton and Newton (1992: 340), who argue that “a lack of drawing skill does not seem to deter attempts at depicting the most complex artefacts”.

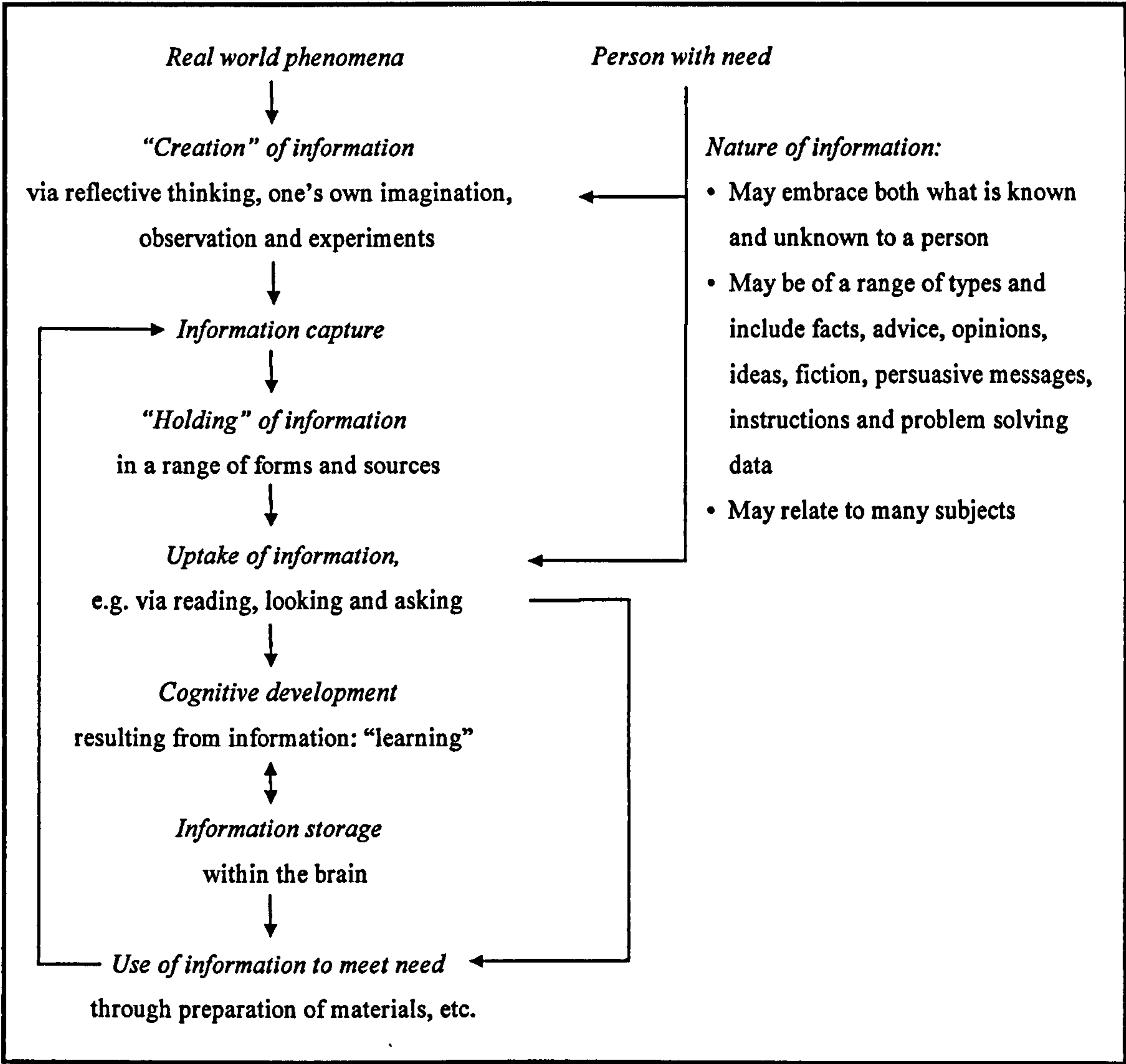
When informants used the term, “information”, of their own volition, the scope of its employment was limited. Often it was used solely in connection with academic needs or sources such as books and computers. It was only when they were specifically asked to address the word by providing definitions and possible information sources that many informants began to explore it more widely.

- c) A shift towards a greater openness in their perceptions of information was detected among older informants, as apparent in their appreciation of different information forms, including those that are non-textual, in their acknowledgement of a wider range of types of information and in their representation and articulation of a greater diversity of information sources. Younger informants were generally open only with regard to the subjects that they believed information could embrace.
- d) The inclination of older informants to think in general terms rather than of the individual, isolated sources and behaviours identified by their younger counterparts was evident in their use of recognised collective nouns that grouped sources, such as “the media”, and in their own typologies of sources and information-seeking actions. These typologies may be considered to be of the “indigenous” variety noted by Patton (1990: 398) since the types were formulated by the youngsters themselves.

8 A COMPOSITE MODEL OF THE LIFE CYCLE OF INFORMATION

Figure Y provides a model representing the life cycle of information and is grounded in the data contributed by the participants. It is based on the ideas of informants of a variety of ages and includes data elicited in relation to all elements within the data collection sessions.

FIGURE Y: MODEL OF INFORMATION LIFE CYCLE



9 CHAPTER SUMMARY

- Understanding of the term, "information", developed rapidly during the first school years.
- The youngest children able to read the word, "information", were aged five rising six. It was not until this age that any youngsters demonstrated a recognition of the term when it was read to them.
- Some children of four rising five were able to comprehend the concept of "finding out" and to identify ways in which this might be done.
- Information was often understood by young children to be the material made available in books and computers.
- Youngsters disagreed as to whether or not all computers could supply information.
- Middle schoolers frequently associated the term, "information", with icons, especially "i" signs.
- Many high schoolers demonstrated complex understandings of the term incorporating a range of concrete and abstract elements. They often regarded information as integral to learning.

- When youngsters employed the word, “information”, in their own speech, it was predominantly within the context of facts obtained from a source.
- Use of the term, “information”, by youngsters of their own volition was much more frequent among upper middle and high schoolers than younger participants, although, at all levels, the word, “stuff”, to mean information was more common.
- When presenting definitions of “information”, informants offered a wide variety. Typically, they referred to one or more of the following: need situations, sources from which information might be obtained, actions that might be taken to retrieve information, the fact that meanings are communicated, or some change that is made to the recipient’s knowledge after information has been accessed. Synonyms believed by youngsters to convey a similar meaning to “information” were often suggested.
- First schoolers were usually limited in their defined scope of information, associating it principally with facts and text, although many did realise that these might relate to any subject area.
- For the most part, young children struggled to conceive of information providers beyond books, computers and other people, and it was often only older informants who indicated that information could also be gained from observation and materials in the world at large.
- Teenagers were more varied in their understandings of information and there was little consensus.
- Their definitions were generally more “open” than those of younger participants. It was frequently recognised that information could be presented in a range of forms (including pictures) and be of different types (embracing opinions in addition to facts), as well as being provided in a range of sources.
- Whereas younger children often believed people who supplied information were likely to take the form of subject experts, teenagers tended to realise that this was not always the case.
- There was disagreement at all levels as to whether or not fiction could be considered information.
- Some older informants identified groups of sources that might offer information. A few such groups, like “the media”, are widely recognised but others were derived from the youngsters’ own understandings.

CHAPTER SIXTEEN

YOUNG PEOPLE'S INFORMATION NEEDS

This chapter reports and discusses the project findings in relation to the study's second strand, young people's information needs. Much of the chapter is taken up with a typology of these needs and an examination of their prevalence. Previous research is revisited in order to investigate the extent to which the need types identified have emerged in past typologies. Particular consideration is also directed towards issues involving curriculum information required for school and towards recreational information needs, both of which proved major areas of need. The chapter reveals the ways in which multiple information needs may develop from a single situation before highlighting a range of situational factors that must be recognised if a multi-dimensional understanding of youngsters' information needs is to be gained. Finally, a short summary reminds the reader of the chapter's main revelations.

1 A TYPOLOGY OF NEEDS

Needs of thirteen types were identified - advice, spontaneous "life situation" information, personal information, affective support, empathetic understanding, support for skill development, school-related subject information, interest-driven information, consumer information, self-development information, preparatory information, reinterpretations/supplementations and verificational information:

a) **advice.** Here the youngster sought guidance on the action that should be taken in a certain situation. Wilson (1981: 5) recognises advice to be one of the forms of information frequently required by individuals. If "advice needs" are categorised according to their subject, seven major areas emerged - assignment-specific choices, situational problems, leisure, health/welfare, finance/money management, relationships and self-development:

- **assignment-specific choices.** Some informants were required to make decisions on the topic to be addressed when producing a particular piece of work as part of their academic obligations. In Rosemary's (Y8/D-2/II/98) case some help was offered by her teacher who presented a list of possible subjects, although pupils were free to nominate further topics. Both she and Ross (Y10/B-3/II/72) sought broad guidance on the nature of the subjects they might select, whilst Lesley (Y9/B-3/II/78) wanted more precise information - both "ideas of what I could do" and advice on her final decision. The end product took various forms, including a portfolio (Rosemary), an essay (Lesley) and a talk (Ross);
- **situational problems.** Here youngsters involved in a particular activity were halted by a difficulty or new development, and required guidance in order to make an effective response. Some situations related to school work. Michelle (Y13/B-3/II/89) reported seeking advice when she was "stuck on a question for an essay". Other pupils were more specific. When undertaking a prolonged study in History, Tessa (Y13/B-3/II/75) found that she had accumulated so much information that she did not know how to structure her essay.

In some cases problems were of a technical kind involving computers. Whilst booting-up her system at home, Naomi (Y5/D-2/II/12) found that a status check informed her that the machine was infected with a virus. She then sought advice on what should be done. Similarly, Douglas (Y7/D-2/II/93), after retrieving information via computer for a school project, learnt that his printer was not

functioning and he was unable to print out his material. For some youngsters, problems emerged outdoors. Andrea (Y7/D-2/II/97) was unsure of what to do when her pet dog ran away, and Frank⁵ (Y5-Y6/D-2/FG/3) and his brother asked for guidance when, whilst walking their dog, they found a stray kitten.

Unfamiliar environments posed particular problems for some youngsters. Two from different school phases, Natasha (Y1/G-1/II/9) and Sandra⁶ (Y5-Y6/C-2/FG/4), recalled how they had accidentally locked themselves in toilets whilst on holiday, and Malcolm⁶ (Y5-Y6/C-2/FG/4) indicated that, after being separated from his parents when shopping, he had become lost. In another “holiday” story, Nancy⁵ (Y5-Y6/C-2/FG/4) recounted how, “in France I was looking after my brother and when we’d gone to the park he got mad with me and he just walked off. I couldn’t find him anywhere and had to go back to the house to tell my Mum”. In each case the informant required advice on how best to remedy the situation;

- **leisure.** In these instances youngsters with spare time made decisions in relation to or as part of activities they found pleasurable. Sometimes the decisions pertained to immediate action, as was the case when Beverley (R/A-1/II/109) had to determine whilst she was on the premises “what sweeties to choose in the shop” but, elsewhere, decisions pertained to actions to be pursued at a later date. Philippa (R/A-1/II/108), for example, had to decide “where to go on holiday” some months in the future. For older youngsters, leisure-oriented decisions sometimes concerned a forthcoming challenge. May (Y7/C-2/II/34) for example, deliberated over “whether to do a [dance] competition or not”.

Several first and middle schoolers struggled to make decisions as to which to pursue when two pleasurable activities clashed. Rose⁶ (Y5-Y6/D-2/FG/3) explained one such dilemma: “I really like netball. I have it every Tuesday but all the netball matches are at weekends - it’s like every other Sunday we have a netball match - and I also had a friend’s party to go to so I had to decide what to do.” Comparable situations were described by Olivia (Y3/A-1/II/114), Mary (Y3/G-1/II/3), Dominic (Y4/A-1/II/116), Hilary (Y6/D-2/II/18) and Louis (Y8/D-2/II/103);

- **health and welfare.** Most youngsters experiencing needs within this category sought guidance either in relation to a medical condition or another form of situation which they believed jeopardised their health. Edgar (Y2/A-1/II/111) described how he required advice in two different instances. In the first, he had suffered from a headache and, in the second, food had lodged in his throat. On each occasion, advice was sought at the time of the condition causing concern. Some youngsters, however, found themselves having to make decisions in the *aftermath* of an illness. Joy (Y12/B-3/II/67) described how she had “had to make lots of decisions lately” after being unwell for some months. Now suffering from post-viral fatigue syndrome, she explained, “I’ve been really tired at certain points and I’ve had to cut down on things and make decisions on what I should be doing and what I can’t really do any more. They’re things outside school as well as things in school.” Joy was one of several making decisions that would have a considerable effect on her immediate future. In a similar vein, Tanya (Y8/C-2/II/46) had “to decide whether I wanted to have a brace or not”, and Adrian (Y10/B-3/II/73), who had made a decision to stop smoking, wanted “information on how to quit”.

In the only situation involving the making of a medical decision that did not directly affect the informant, Cathy (Y6/C-2/II/32) recalled how “my rabbit had a tumour and we had to decide whether she should be put to sleep or make her suffer through it”;

- ***finance and money management.*** Here youngsters with money available to them had to determine the most effective ways of using it in certain situations. Some circumstances of this kind were regular and seasonal. Zack (Y5/C-2/II/27) and Clint (Y7/C-2/II/38) both outlined how they “needed to decide what Christmas presents to buy”. Other cases were more isolated. Ruth (Y6/C-2/II/31), for example, explained how, having raised funds for a charity, she had to determine how the organisation should spend her money;
- ***relationships.*** In these situations, informants made decisions either concerning their own roles with others or in connection with situations involving close friends and others. The former category has been found by Bennett (1998: 24) to be a major area of need among youngsters using an information service on the Internet. Josie (Y2/A-1/II/110), speaking immediately after an incident that had provoked conflict between them, recalled how she had had to make “a hard decision about whether to be Carly’s friend ‘cos we always fall out”. Other youngsters sought advice on general strategies in relation to groups of people. Penelope (Y2/C-1/II/55), who, by her own admission was shy, had been unsure of how to set about trying to make friends. Francesca (Y2/G-1/II/5) required guidance on how to regain the friendship of other girls at school when they “don’t let me play with them. They make me go off and won’t let me play and they say they won’t let me play ever again”. Here, however, Francesca’s decision related to a particular group of girls known to her. Vanessa (Y5/D-2/II/14), who sought advice “after breaking up with friends”, was not concerned solely with tactics for regaining them; she was deliberating more broadly on what she should do after such a dispute. Cathy (Y6/C-2/II/32) had established that her relationship with a particular friend was now at an end and her dilemma was again a tactical one - how she should inform others of the break-up which might arouse disapproval. Cathy described her situation at length, “Me and my best friend sort of fell out. We were getting bored with each other and didn’t want to be best friends any more. I didn’t know the best way of telling my parents ‘cos hers and my parents are very close. We’re both big church families and stuff.” Gratch (1978: 18) has found that such problems relating to the family and peers are commonly felt by youngsters.

Not all situations related to conflict, however. Kenneth (Y3/C-1/II/48) had deliberated over the action he should take in anticipation of a friend’s birthday. He did not know whether he should make a birthday card for him or purchase one. A striking pattern in the reported situations lies in the fact that all but one involved girls and even the exception, that of Kenneth, was not concerned with the relationship as such but rather an additional issue resulting from a friendship.

Only one instance emerged where a youngster was troubled by the relationship between someone other than him or herself and another. Candice (Y6/D-2/II/16) described how she sought guidance on what action should be taken by a friend who was being bullied;

- ***self-development.*** Some youngsters found themselves at a stage in their lives where they had to make decisions on their future studies, either at school or university. The youngest to mention such a situation was Pauline (Y6/C-2/II/30) who “had to decide whether to take an extra SATs paper”. Many deliberations involved the selection of subjects to be pursued either at GCSE (Ed⁹, Y9-Y11/B-3/FG/8,

Benny⁹, Y9-Y11/B-3/FG/8, Bob, Y9/B-3/II/64, Greg, Y9/B-3/II/76, Jeff, Y9/B-3/II/77) or “A” Level (Julia¹¹, Y9-Y11/B-3/FG/8, Jean, Y11/B-3/II/70, Maurice, Y11/B-3/II/86). In some cases youngsters required advice on which courses would be most useful in preparation for a certain career. Jeff, for example, wanted to know the “subjects I should choose if I want to be a fireman”. Many decisions on subject choices had to be made by all members of a particular year group or all those planning on remaining at school after the current academic year but some found themselves in more unusual positions. After selecting his “A” Level subjects and embarking on the courses, Harrison (Y12/B-3/II/85) reconsidered and sought advice on the substitution of one subject for another.

Several older teenagers wanted guidance relating to university. Michelle (Y13/B-3/II/89) summarised the issues succinctly: “what course and where”. Similar questions have been identified by Julien (1999: 43-44) in her study of career decision-making by adolescents. Some teenagers (Michelle, Y13/B-3/II/89, Liana, Y13/B-3/II/90, Wayne, Y13/B-3/II/91) were unable to make a free choice with regard to the universities to which they would apply. The cost of living away from home prevented several from applying to institutions beyond the locality, and the fact that the organisation must offer a particular course was another limiting factor. Indeed, Liana immediately ruled out one university because the teaching course that it offered was science-based rather than of the more general character she wanted. Selection of a course and institution usually involved a two-stage decision-making process, the first part involving the choices for initial application and the second devoted to the selection of that to be ultimately accepted in the event of multiple offers being made to the pupil. The American Library Association (1989: 90) suggests that the decision as to which university one should attend is among the most important of all;

b) **spontaneous “life situation” information.** The situations within this category were of two types:

- **problems.** As in the second strand of (a) above, a youngster’s progress in an activity was arrested by a problem the resolution of which could be facilitated by information. Here it was not advice that was sought but facts associated with the events forming the problem. Melissa (R/A-1/II/121) described how “once I went to a shop with Mummy. We were over at the shop and I put my [toy] rabbit on my bike and when I came back he wasn’t there.... Mummy said someone else must’ve took him”. A knowledge of who had taken her toy might have helped the girl to recover it. Melissa was one of two youngsters who sought information about missing toys. The other was Nathan^R (R-Y2/A-1/FG/11) who outlined how, when wanting to play with a toy in which you “pin little shapes on a board”, he was unable to find the hammer that was an integral part of the activity. Several problems involved others. Carol³ (Y3-Y4/G-1/FG/2), for example, after being unable to find her homework book in its usual place sought details of where her mother had put it. In the situations described in section (a) relating to Malcolm⁶’s (Y5-Y6/C-2/FG/4) being lost in the shopping centre and Andrea’s (Y7/D-2/II/97) missing dog, both youngsters sought facts in addition to advice. The former wanted to know the location of his parents and the latter that of her stray pet.

Several youngsters reported instances in which their reading was halted when they encountered a word that either they did not recognise or carried no meaning for them. Both difficulties were experienced by Barbara (Y4/G-1/II/22). In some cases these problems emerged when homework was being tackled. Judy (Y5/D-2/II/13) was unable to progress until she could read all of the words

involved in her English exercise, and Norman (Y8/D-2/II/106), undertaking a Geography project, struggled to read or understand several of the words in a booklet provided by his teacher. Such events, in which information is required to solve a problem, can be seen to lie within the category of information use that Dervin (1983: 17, 65) describes as “Got Out of a Bad Situation”;

- **curiosities.** Once more, the participant stopped in a situation but here not as a result of a problem but when curiosity had been provoked by a stimulus. The youngster might have made a discovery that led to a desire to know more. Sally² (R-Y2/A-1/FG/11), when visiting a museum, had seen exhibits that she was “really interested in and wanted to know more about”. Olivia (Y3/A-1/II/114), making a similar visit, found a certain artefact - “a coin from Roman times with Hadrian’s head on” - to be of particular interest. Tony (Y2/C-1/II/54), too, had made discoveries that aroused his curiosity, although he was working at home. He described a “project” in which he examined under a children’s microscope “traces” of materials and substances such as “medicines, fabric and drinks”, and wanted to know more about what he could see. In all three instances the situation prompting the youngster’s curiosity was highly specific. Victor² (R-Y2/A-1/FG/11), however, outlined a more generic “life situation” stimulating curiosity - “when things are in books and they don’t describe” a subject of interest to the reader in sufficient detail. Karen (Y1/G-1/II/7) reported several instances in which her curiosity had been provoked by everyday artefacts. She was keen to know about “how people make things”, especially the bread eaten at home and the tubular metal frames forming part of the chairs at school.

On occasion Victor² (R-Y2/A-1/FG/11) required information to satisfy curiosity about an unfamiliar word. This was the case too for Harvey (Y6/C-2/II/33), whose interest in certain words and vocabulary arose on hearing them in the conversations of others. The word, “equanimity”, had been of particular interest to him. In the same way, Darren⁸ (Y7-Y8/C-2/FG/5) observed that, from time to time, there were certain words at school “that everyone’s talking about” and, wishing to know more about them, he had recently sought information relating to such subjects as the Druids and street furniture;

- c) **personal information.** Here participants sought mainly factual information pertaining to themselves, protagonists in their immediate social world or events within that community. Personal information may be subdivided into that concerning the youngster him or herself and that devoted to others:

- **relating to self.** Situations here may be grouped into present/predictable and projected:
 - ⇒ *present/predictable* devoted respectively to current or ongoing situations or to events that can be forecast with reasonable certainty. These addressed the following areas:
 - ◊ medical diagnoses, some concerning temporary ailments, such as cuts, aches or infections (Len¹, R-Y2/C-1/FG/7, Nicholas², R-Y2/C-1/FG/7), often resulting from minor accidents. Other diagnoses involved more serious illnesses and conditions, such as appendicitis (Olivia, Y3/A-1/II/114, Kieron, Y7/D-2/II/96) or broken bones (Ian⁴, Y3-Y4/G-1/FG/2, Kevin, Y7/C-2/II/95). Often diagnoses were solicited after youngsters identified diversions from the norm;
 - ◊ information about own possessions, most of which had been received by the youngsters only recently. June (Y1/C-1/II/57) recalled how “one time my Grandpa had sent me and my sister a fossil and we wanted to know more about it... like where it came from”. Zack (Y5/C-2/II/27) sought information about the particular model of guitar that he had been given for Christmas,

and Christian (Y4/G-1/II/2) was keen to know about what was involved in a new computer game he had purchased;

◇ information about one's immediate environment, such as the home and the school. Maggie (Y1/A-1/II/119) confided that "I've been looking all round the school and there's only one room I haven't been in. I've looked on the door. It says, 'Staff Room', but I've never been in and the door's always shut. I want to know what it's like inside";

◇ information about routines to be followed in certain situations. Chantal^R (R-Y2/G-1/FG/1) had needed clarification from the teacher about where in the classroom she was expected to be working. Some youngsters new to a school required details of school practices that were unfamiliar to them and which had not been explained (Sean, R/G-1/II/25). Miranda (R/G-1/II/11) needed to know what she was expected to do when she was given a new exercise book, her motivation stemming from her concern for the consequences should she behave inappropriately. "My teacher might tell me off," she feared;

◇ quick reference information associated with times, dates and places relevant to the youngster. Many questions, such as "Where are we going on holiday?" (Beverley, R/A-1/II/109) or "What time are we going to Mam's shop?" (Raymond, R/G-1/II/10), were heavily family-oriented;

⇒ *projected*. Here the informant required information relating to an event yet to take place and forecasts that would prove accurate with time could not be given with total confidence. The only need of this kind was expressed by Julia¹¹ (Y9-Y11/B-3/FG/8), who sought information on her likely levels of performance in forthcoming GCSE examinations. The predictions would inform her selection of "A" Level subjects. Poston-Anderson and Edwards (1993: 27), who have also found evidence of needs of this type, term them "assessment" needs;

- *relating to others*

⇒ *present*. Situations within this category involved the following:

◇ medical diagnoses. Daisy² (R-Y2/C-1/FG/7) sought information on the medical condition of her newborn sister after observing that she "had this big, red spot on her head";

◇ life activities. For the youngest children, news relating to the lives of other members of the family held great fascination. Tony (Y2/C-1/II/54) indicated that "I always want to know what's going on in the house", so much so that he admitted that his parents often accused him of "being nosey". For others, relatives living in other countries were of particular interest (John³, Y3-Y4/G-1/FG/2, Sandra⁶, Y5-Y6/C-2/FG/4). Perhaps the most serious needs of this type were those of Ruth (Y6/C-2/II/31), in relation to her father based in Kosovo with the British Army. Teenagers were also curious about the lives of others known to them, although in many cases it was their peers who were the foci of attention. Michelle (Y13/B-3/II/89) termed this area "school gossip" and suggested that it often involved relationships or "who's split up with who";

d) **affective support** relating to a variety of past, ongoing and future situations. Eight areas of concern emerged - new experiences, the discharge of responsibilities, self-image, social/technical unpredictabilities, illnesses/medical conditions affecting self, personal relationships, feelings for others and "phobias":

- *new experiences*. Several youngsters were apprehensive when faced with new situations, some of which took the form of challenges which the youngsters had originally welcomed. The anxiety of Lionel

(Y8/D-2/II/102), who was to begin ice hockey classes, stemmed from the fact “I knew that there’d be no-one there I’d know”, and that of Joe (Y3/C-1/II/50), who was starting swimming lessons, derived from meeting his instructor for the first time. Maureen (Y7/C-2/II/35), who had agreed to take part in an exchange scheme that involved moving temporarily to Australia, was worried about “missing my family and having to start all over again at school”.

Other situations causing concern had not been initiated by the informants. Kieron (Y7/D-2/II/96) had had to go into hospital for an operation, and Norman’s (Y8/D-2/II/106) family had recently moved house. Two youngsters described their anxiety over their new role in the family after the birth of a sibling (Gillian⁵, Y5-Y6/D-2/FG/3, Dudley⁶, Y5-Y6/D-2/FG/3). In some instances an entirely unforeseen situation emerged and the individual’s lack of familiarity with it caused immediate distress. This was the case for Natasha (Y1/G-1/II/9), who, when on holiday, found herself locked in a toilet;

- *discharge of responsibilities*. Here youngsters were anxious about situations in which they had to contribute in some way, usually in terms of work or behaviour. The scenarios may be categorised as school-related, otherwise imposed and self-initiated:

⇒ *school-related*

- ◊ homework and written classwork. Pressures relating to homework were commonly reported. Usually they involved concern over whether or not the work could be finished on time (Gillian⁵, Y5-Y6/D-2/FG/3, Isaac, Y5/D-2/II/101, Pauline, Y6/C-2/II/30, Rick⁷, Y7-Y8/D-2/FG/10, Shane⁷, Y7-Y8/D-2/FG/10, Dirk, Y7/D-2/II/94, Greg, Y9/B-3/II/76). Duncan (Y12/B-3/II/84) believed that such assignment anxieties were more pressing for some pupils in his year group than others as the number of assignments varied from person to person. He claimed that he was particularly affected “because all three of my subjects are fairly coursework-oriented”. Often youngsters were fearful of the consequences if the work were not submitted. The threat of after-school detention frightened Shane⁷ (Y7-Y8/D-2/FG/10), and Isaac (Y5/D-2/II/101) was alarmed by the prospect of “getting told off by the teacher”. Some were worried about the teacher’s reaction should their submissions be substandard. Pauline (Y6/C-2/II/30), fearing that she had not made as much effort as usual, commented, “I was very worried that Mrs. Jones would start on us”. Like their older fellows, younger informants experienced anxieties about the completion of work but usually this was within the classroom. Don (Y2/G-1/II/4), described his unease about completing a particular item of classwork, feeling that, if it were not done, he would be obliged to finish it during break or lunch time. Whilst many were anxious about completing work, the fears of some were heightened by the fact that they found the task especially difficult. Specific areas of work roused apprehension in some youngsters and they lacked confidence in their ability to tackle what was required of them (Kenneth, Y3/C-1/II/48, Wes, Y4/C-1/II/51, Nigel, Y5/C-2/II/29).

Situations in which youngsters believed themselves to be at a disadvantage in relation to their classmates but were still expected to complete work in the same way caused much concern (Ruth, Y6/C-2/II/31; Dirk, Y7/D-2/II/94). Ruth explained her situation in detail: “We’ve been doing this History project and it had to be handed in on the Friday in the History

lesson but because I'd been off on the Wednesday I didn't know it had to be handed in. So I knew I was going to get a really rubbish mark and I was dead worried about it";

- ◊ tests and examinations. For the first and middle schoolers, these often took the form of class tests (Alice³, Y3-Y4/A-1/FG/12, Maria³, Y3-Y4/A-1/FG/12, Curtis, Y3/A-1/II/115, Rod³, Y3-Y4/G-1/FG/2, Lisa⁵, Y5-Y6/C-2/FG/4, Eric, Y8/C-2/II/41) or SATs (Pauline, Y6/C-2/II/30, Anneka, Y6/D-2/II/19, Darren⁸, Y7-Y8/C-2/FG/5), whilst, for older participants, they were GCSE or "A" Level exams (Gus, Y12/B-3/II/65). Gus, although acknowledging that he was at times troubled by nervousness, drew some comfort from the fact that "everyone's in the same boat". The anxieties of others were heightened by the climate within school. According to Pauline (Y6/C-2/II/30), "With teachers going on and on about SATs all the time, it *makes* you get worried." Sometimes a certain subject, such as Mathematics (Anneka, Y6/D-2/II/19), caused real concern, even when pupils were to be tested in a range of disciplines. Pauline was anxious about an extra SATs paper she had agreed to tackle and felt that because of its higher level she would "probably fail it". Whilst many youngsters felt general apprehension about tests and exams, others were troubled by certain issues. Lisa⁵ (Y5-Y6/C-2/FG/4) worried that she would be unable to complete the questions in her Mathematics test within the allocated time, and Maria³ (Y3-Y4/A-1/FG/12) was made uneasy, again in relation to a Mathematics test, by the fact that "we're only going to have ten seconds to answer each question and then we go on to the next one". Rod³ (Y3-Y4/G-1/FG/2), knowing a test on Islam was imminent, was alarmed that "I didn't know as much as I should know".

For some, anxieties emerged after the event. Curtis (Y3/A-1/II/115) explained, "I was worried because there were some questions [in a Mathematics test] that I didn't understand and I didn't really know what to do about it." For Joan (Y4/C-1/II/52), affective needs arose after the marking of a Mathematics test, since she was disappointed at receiving a poorer score than a friend. The fact that so many of the youngsters' anxieties related to Mathematics is striking. A tentative explanation may be that, for young children, especially, Mathematics is one of the subjects on which they are tested most frequently;

- ◊ oral situations. After tests and exams, the academic situation causing anxiety most often was that of oral situations in class. Usually, these involved the delivery of a formal talk. Kirsty (Y8/D-2/II/99) captured the views of many: "It was horrible having to stand out in front of everyone." Mandy (Y11/B-3/II/69) believed that some teachers did not appreciate the distress caused to the speaker and, within her school, staff "expect a lot in the way of talking in front of people". Mandy's anxieties had escalated after an incident some years earlier when she had been so nervous before a presentation at middle school that she had burst into tears when asked to perform. "That's given me a thing about doing them and now my confidence has just gone," she admitted. For Jean (Y11/B-3/II/70), other oral situations causing alarm included conversations with assistants in German lessons and occasionally reading a passage aloud. In the latter task, Jean's anxiety stemmed from the fact that "there are certain people who I feel a bit intimidated by";

- ◊ violation of routines. Colin⁴ (Y3-Y4/G-1/FG/2) was fearful of the consequences when he had not returned his spelling sheet to school after being required to do so;
- ◊ unacceptable behaviour. Here youngsters were concerned about possible sanctions that might be taken against them after they had misbehaved in class. In this respect, the situations resembled many of those relating to homework in that it was the threat of the consequences of their actions that caused anxiety. Ross (Y10/B-3/II/72), who had behaved disrespectfully towards a supply teacher, was concerned that “my parents were going to get phoned”;

⇒ *otherwise imposed*. Sometimes youngsters found themselves obliged, usually by members of their families, to take a particular course of action and distress resulted, either directly or indirectly. Beverley (R/A-1/II/109), for example, described her worries about “going to the dentist”;

⇒ *self-initiated*. Not all situations in which particular demands were made of youngsters related to school or were of a compulsory nature. Several informants, generally middle and high schoolers, had voluntarily taken on roles in events such as competitions and concerts and were nervous about the challenge ahead. Suzanne (Y6/D-2/II/21) had applied to appear as a contestant on a television programme and was anxious as to what this would involve. Tim⁵ (Y5-Y6/C-2/FG/4) outlined his apprehension before he attempted his three thousand metre swimming badge, and Linda (Y7/C-2/II/36) described how, in a gymnastics competition, she was dreading “doing a handspin on the floor”, largely because she had never performed the move before in public. In the same way, Eileen (Y12/B-3/II/66) admitted that she was “sick with nerves” about playing solo in a music concert. Some, having committed themselves to certain responsibilities, now questioned the wisdom of their decisions. Michelle (Y13/B-3/II/89), for example, who worked part-time, was uncertain as to whether or not she had struck the correct balance between the time she spent in her employment and her duties for school;

- *self-image*. Rose⁶ (Y5-Y6/D-2/FG/3) expressed concern of this type. In particular, she was envious of her sister, feeling that her sibling was “better looking than me”. Gratch (1978: 18) has found problems of this kind to be commonly experienced by youngsters;
- *social and technical unpredictabilities*. Here youngsters’ normal routines and expectations were disturbed by unanticipated events which were considered by the informants to present problems. Such anxieties included those resulting from an encounter with a computer virus (Naomi, Y5/D-2/II/12) and being lost in a shopping centre (Malcolm⁶, Y5-Y6/C-2/FG/4). Sean (R/G-1/II/25) described his unease “when the fire bell went in assembly” and Carol³ (Y3-Y4/G-1/FG/2) her disquiet when she was unable to find her homework book which was not in its usual place. Nancy⁵ (Y5-Y6/C-2/FG/4) recalled how she was “really worried and scared I was going to get the blame” when her younger brother, whom she had been asked to look after in the absence of her parents, had wandered off. Some events were believed by the participants to pose dangers to their physical well being. May (Y7/C-2/II/34) spoke of events on holiday that she found very frightening: “We were going up to the New Forest with our caravan and the wind swerved the caravan and took the car with it. Dad didn’t know what to do ‘cos he couldn’t control the car.” Barry’s (Y2/A-1/II/112) concern related to possible damage to property. He described how he had been “worried sick” over an event that had happened the previous night when “a boy and a girl... chucked soil and stones at my sister’s window... I thought it would smash”;

- *illnesses or medical conditions affecting self.* Informants described a range of ailments in relation to which they had required sympathy or support from others. For some young children, these involved minor accidents (Beverley, R/A-1/II/109, Len¹, R-Y2/C-1/FG/7, Diane, Y4/G-1/II/1, Barbara, Y4/G-1/II/22, Sandra⁶, Y5-Y6/C-2/FG/4). In a few instances the accidents were more serious and resulted in broken bones (Ian⁴, Y3-Y4/G-1/FG/2) or wounds that needed stitches (Tim⁵, Y5-Y6/C-2/FG/4). Some recalled more generally situations of temporary illness, Dean¹ (R-Y2/A-1/FG/11) referring to times “when I’ve got a headache” and Anita¹ (R-Y2/A-1/FG/11) to “when I’m feeling sick”. For Kieron (Y7/D-2/II/96), a precise situation of this kind came immediately to mind - he had suffered from vomiting at a Scouts’ camp. Here the fact that he was far from home and embarrassed at being sick in the company of his peers made the situation all the more distressing. Occasionally the situation causing concern was simply a result of natural biological development. Derek (Y2/G-1/II/6) described his agitation when “my best tooth for eating came out”;
- *personal relationships.* Youngsters’ concerns over their relationships with others usually resulted from a situation that had involved some sort of conflict (Josie, Y2/A-1/II/110, Meredith, Y2/C-1/II/56, Francesca, Y2/G-1/II/5, Vanessa, Y5/D-2/II/14). In Josie’s case this had arisen from a misunderstanding. She explained, “Carly and me fell out today. She was in a race and her shoes fell off and she thought I was laughing at her but I wasn’t. Then she shouted at me.” Three reported instances of bullying caused grave anxiety to the victims. Kevin (Y7/D-2/II/95) recollected how, after being punched at school and suffering a broken nose, he was nervous about “what’s going to happen when I come back”. Elsewhere, the abuse was less physical and took the form of taunting and name-calling. Naomi (Y5/D-2/II/12), who suffered badly from eczema, described how some of her classmates repeatedly addressed her as “scabby hands”. It would appear that the experiences of these victims of bullying are indicative of a highly prevalent social problem. Indeed, Coleman and Schofield (2001: 80) quote statistics which suggest that as many as approximately twenty percent of secondary school pupils are bullied during the current academic term.

In some instances youngsters were worried about the effect on others of decisions that they had made. Louis (Y8/D-2/II/103) felt that his decision to pursue a particular social engagement might alienate a friend with whom he normally spent that time and, in a more general context, Clint (Y7/C-2/II/38) was perturbed about “whether people will like the Christmas presents you got them”;

- *feelings for others.* Many youngsters expressed concern for others. Some anxieties related to the welfare or even death of known individuals. Often concerns emerged as a direct result of a knowledge that the people involved were or had been in danger. Olivia (Y3/A-1/II/114) talked of her fears for her mother when she fell downstairs at home. Russell⁴ (Y3-Y4/C-1/FG/6) and Christian (Y4/G-1/II/2) spoke of their concern for their grandfathers when they had suffered ill health, and Meredith (Y2/C-1/II/56) became frightened when her great grandmother took ill as she watched. Norman (Y8/D-2/II/106) described his grief over the death of an aunt, and Siobhan⁴ (Y3-Y4/C-1/FG/6) also found herself having to come to terms with a sense of loss when the father of her best friend died. Some people for whom the youngsters indicated concern were contemporaries. Barbara (Y5/G-1/II/22) described her anxieties when her friend was unwell “with tummy ache all the time and had to go to hospital”, and Toby (Y11/B-3/II/87) had been concerned about a friend “who tried to kill herself” earlier in the school year. Whilst

most anxieties relating to others pertained to their health, some involved their general well being. Ruth (Y6/C-2/II/31) was troubled about her father, who, working for the army, had been based in Kosovo during the height of tensions in the area. On some occasions, it was a family pet, not a person, at the heart of the concern. Andrea (Y7/D-2/II/97) worried over her lost dog, Ruth (Y6/C-2/II/31) over her hamster who was seriously ill and Gillian⁵ (Y5-Y6/D-2/FG/3) was anxious about the welfare of her father's new dog after her exasperated mother, apparently in jest, cried, "If you [the dog] don't be quiet, I'll send you to the sausage factory!"

Some agitation centred around conflict in the relationships of others. Josie (Y2/A-1/II/110) was alarmed about a rift between her parents. She confided, "I've been worried in case my Mum and Dad split up. They've been having quite a lot of problems... last night they were shouting when I was in bed." In a similar vein, Norman (Y8/D-2/II/106) had been anxious at the time of the divorce of his mother and stepfather. Other situations, however, related to the youngsters' wider social worlds. Sandra⁶ (Y5-Y6/C-2/FG/4) described her concern over the bullying of her best friend;

- *"phobias"*. Some youngsters had personal fears which, although evidently real to them, were not explained rationally to the researcher. Leo^R (R-Y2/C-1/FG/7) spoke of his anxieties "about when I die", although he could not elaborate. Similarly, Hilary (Y6/D-2/II/18), who described her fears that "sci-fi movies I've watched might come true", was unable to express the reason for this state of mind, and Gerald (Y1/G-1/II/8) was worried that he might not receive any presents on his birthday;

e) **empathetic understanding** of other people known to the youngsters. This information was of two kinds. It related either to a person generally or to an individual's specific behaviour at the time of a certain event. In the former category, several young children with a close friend or sibling sought more information about them. This information was of an affective nature, embracing such issues as their likes and dislikes (Elizabeth^R, R-Y2/G-1/FG/1, Miranda, R/G-1/II/11). Two teenage girls, Scarlett (Y10/B-3/II/80) and Liana (Y13/B-3/II/90), desired similar information in relation to their boyfriends. Elsewhere, empathetic information was sought to explain why others had responded in a certain way in a past situation. Raymond (R/G-1/II/10) was curious about the inconsistency with which his father had treated him. He recalled how he had recently allowed Raymond to help with decorating work at home. Subsequently, however, when he was undertaking similar work, he would not let his son become involved. Raymond was at a loss to understand the difference in his father's attitude. In a more serious situation, Toby (Y11/B-3/II/87) described how his best friend had unsuccessfully attempted suicide earlier in the academic year. Shocked by the event, Toby explained how he wanted "to understand what's gone wrong for her". In each case the two informants were seeking information on people's motivations.

The fact that most of the situations involving needs for empathetic understanding and advice regarding relationships were mentioned by girls is consistent with the results of Murray's (1985: 61) research, which found that needs associated with "softer areas" like self-understanding and family problems are felt by young females rather than males;

f) **support for skill development**. Here youngsters wanted information to enable them to enhance their skills. The category is reminiscent of Dervin's (1983: 17, 65) "Got Skills" type of information use, Bereiter and Scardamalia's (1989: 373) concept of "procedural knowledge" and Taylor's (1991: 230) "instrumental" needs, which he defines as "finding out what to do and how to do something". Support for skill

development also corresponds to one of Orna's (1999: 8) two main kinds of knowledge, specifically that which she terms, "know-how". Within the Whitley Bay study, four overall varieties of skills information emerged - school-required, otherwise imposed, self-initiated and circumstantial:

- *school-required*. Here informants sought to develop skills necessary for the successful discharge of obligations to school. The category does not embrace skills routinely taught to youngsters in class but covers areas in relation to which youngsters had identified their skill deficiencies and recognised a need for more instruction. In general, they were of an intellectual, rather than manual, nature. School-required skills can be divided into two groups - subject-specific and generic:

⇒ *subject-specific*. Some such needs emerged in class, whilst others arose during homework tasks. Many related to Mathematics, where needs addressed forms of calculation, including addition (Barry, Y2/A-1/II/112), subtraction "with big numbers, like thousands" (Naomi, Y5/D-2/II/12), multiplication (Don, Y2/G-1/II/4) and division (Maria³, Y3-Y4/A-1/FG/12, Christine, Y5/C-2/II/47, Candice, Y5/D-2/II/17), and themes such as weighing (Lynne, Y3/C-1/II/49), fractions (Will⁴, Y3-Y4/A-1/FG/12), number patterns (Siobhan⁴, Y3-Y4/C-1/FG/6), partitioning (Pauline, Y6/C-2/II/30) and equations (Mandy, Y11/B-3/II/69). In other cases informants admitted to general, ongoing problems with the subject (Victor², R-Y2/A-1/FG/11, Francesca, Y2/G-1/II/5, Damien⁴, Y3-Y4/A-1/FG/12, Wendy, Y4/C-1/II/53, Jeremy, Y5/C-2/II/28, Jim, Y5/D-2/II/100, Isaac, Y5/D-2/II/101, Anneka, Y6/D-2/II/19). Antony (Y13/B-3/II/74), who was studying "A" Level Mathematics, described a frequent process of seeking more information on a range of calculations during the course. Christian (Y4/G-1/II/2), meanwhile, recognised that he needed help in particular situations, such as "when I'm working from the board", although he did not indicate that problems arose in relation to a certain type of mathematical work. Whilst most believed that their difficulties resulted from weaknesses within themselves, a few argued that they emerged from deficiencies in the teaching. Christine (Y5/C-2/II/47), for example, explained that her uncertainties stemmed from the fact that the content "hadn't really been explained". Dirk (Y7/D-2/II/94) experienced a similar problem. As his teachers considered him to be especially talented at Mathematics, he had been asked to tackle an additional SATs paper in the subject in forthcoming exams. Dirk felt that, as most of his classmates were working at a lower level, he was in an unusual position. He asserted, "I get harder homework than anyone else" and thought that he received less instruction than his colleagues in the skills he was required to learn.

The pattern that, when particular subject-based skills were reported by the youngsters as areas in which they required further information, the overwhelming majority related to Mathematics is striking. One explanation could lie in the fact that Mathematics itself is predominantly concerned with skills, not subject knowledge. In addition, because more time during the school week is spent on this core subject of the National Curriculum than on foundation subjects, there is more "opportunity" for youngsters to flounder in their skills. Alternatively, it is possible that what is expected of pupils exceeds their cognitive capabilities and, in effect, they are being asked to tackle work that is too difficult, or, perhaps, the quality of teaching is such that youngsters are ill-equipped to cope with the demands that the work makes of them.

After Mathematics, the most common single subject in which the participants sought skills information was English. Some needs arose in specific, isolated situations. Naomi (Y5/D-2/II/12) and Judy (Y5/D-2/II/13), for example, described how they had to learn to create adverbs for a homework exercise. Kirsty (Y8/D-2/II/99), however, like Dirk in Mathematics, found herself in a unique position and recognised her need for ongoing “extra help”. Whereas he demanded special attention as he was highly able, Kirsty was dyslexic.

High schoolers, whilst requiring, like their younger counterparts, information relating to skills in Mathematics and on occasion English, sought instruction pertaining to a greater variety of subjects. Needs relating to skills in Modern Foreign Languages, Music and Food Technology emerged at high school level but in neither of the earlier school phases. Conversational skills in another language were required by Jean (Y11/B-3/II/70). Describing how she and a colleague were regularly asked to take part in role-playing scenarios, she outlined a recent example: “We had to imagine we were buying tickets for something, then arranging to meet with a friend and sometimes I don’t know the words I need.” Jean indicated that the vocabulary required was often unknown to her because it was specific to the situation. In the same way, Joy (Y12/B-3/II/67) described how some of the skills in playing a certain piece of music were quite particular to that piece and she had not, therefore, had previous experience of them. In one of the few instances where the skills required by the youngsters related to the construction of a tangible product, Maggie (Y1/A-1/II/119) found herself needing help with “cutting and sticking”. Similarly, for Food Technology homework, Greg (Y9/B-3/II/76) had had to learn how to make pasta. The fact that he identified two areas of need - “what the ingredients are and how you actually make it”, implies that in some cases a degree of subject knowledge (here that of the materials that were required) is necessary, as well as the practicalities of the skill itself.

The circumstances in which the youngsters sought information pertaining to skills usually involved their use either in routine classwork or to complete homework. Only two informants spoke of the need to learn particular skills for tests and exams (Lisa⁵, Y5-Y6/C-2/FG/4, Antony, Y13/B-3/II/74);

⇒ *generic*. Participants also required certain transferable skills, the application of which was not restricted to one curriculum subject, although in each case the youngster had realised his or her own deficiency in an area when undertaking particular work. It was when completing Science homework on “long bones and strong bones” that Nigel (Y5/C-2/II/29) recognised his shortcomings in copying long lists accurately. Whilst he considered this skill to be most characteristic of Science work, he knew that he was also asked to produce such lists in other subjects.

The most common transferable skills identified by youngsters related to time management and the delivery of talks and presentations. The former posed a problem to several informants (Gillian⁵, Y5-Y6/D-2/FG/3, Rick⁷, Y7-Y8/D-2/FG/10, Norman, Y8/D-2/II/106, Greg, Y9/B-3/II/76, Duncan, Y12/B-3/II/84). In particular, the completion of certain assignments by given deadlines proved troublesome. A few asserted that they simply received too much homework (Rick⁷, Y7-Y8/D-2/FG/10) or had too little time in which to complete it (Gillian⁵, Y5-Y6/D-2/FG/3) but others admitted that they were easily distracted and “put off” by other activities (Norman, Y8/D-2/II/106).

Some described situations in which they had needed to develop a plan for completing the work required of them in the time available. Pauline (Y6/C-2/II/30) outlined how, when tackling recent Mathematics homework, she had felt a sense of desperation on learning that "it was twenty past eight and I still had twelve more questions". "A" Level pupil Duncan (Y12/B-3/II/84), who found himself working until 11.00 or 12.00 each night, was studying for so long that he was prompted to wonder if his methods of working were effective. Additional problems were experienced by teenagers who were employed part-time. Michelle (Y13/B-3/II/89) talked of the importance of "getting the right combination of work and school". She mused, "It's really hard right now because we're so close to our exams. In the Easter holiday they're asking us to work loads and you can't tell them you can't work 'cos you'll get sacked but you can't neglect your school work."

In relation to oral presentations, Kirsty (Y8/D-2/II/99) felt ill-equipped to deliver a talk to her class and recognised the need for information on presentation skills or "what you do when you have to stand out in front of everyone". Mandy (Y11/B-3/II/69) admitted to requiring similar skills. Some youngsters needed skills in response to specific concerns. Scarlett (Y10/B-3/II/80) asked, "How do I keep the class entertained and still keep them calm?"

The need for skills pertaining to written presentations was also articulated. Tessa (Y13/B-3/II/75) described how, for a recent "A" Level assignment on the French Revolution, she had sought information on "how to structure it and set it out". Her anxieties stemmed from the length of the piece - four thousand words - which had caused her to become "flustered". Tessa's agitation grew as she undertook preliminary reading, and she doubted whether all the material she was to include could be presented effectively in the essay format with which she was familiar. Skills associated with the production of long, in-depth pieces would have been useful to her;

- *otherwise imposed*. Here demands unrelated to school were made by other parties. In striving to meet their obligations, the informants had to develop certain skills. Karen (Y1/G-1/II/7), in the only reported instance of this kind, outlined how her father "always wants me to type letters, especially to Uncle Paul". This led to her requiring word processing skills in order to produce effective letters on her family's computer;

- *self-initiated*. In this category, youngsters sought, of their own volition and for their own purposes, to increase their skills. Broadly, the skills can be grouped into five areas:

⇒ *active*, relating to sports and other physical pursuits. The former included skills relating to football (Tony, Y2/C-1/II/54, Derek, Y2/G-1/II/6, Russell⁴, Y3-Y4/C-1/FG/6), hockey (Christian, Y4/G-1/II/2, Lesley, Y9/B-3/II/78), golf (Larry, Y5/C-2/II/26), netball (Rose⁶, Y5-Y6/D-2/FG/3), ice hockey (Lionel, Y8/D-2/II/102), badminton (Lesley, Y9/B-3/II/78) and rugby (Lesley, Y9/B-3/II/78). Many of those seeking to develop their sporting skills were male. It can also be seen that the division of sports between boys and girls tends to coincide with long-held gender stereotypes. Male-associated sports, such as football, were generally played by boys, whilst girls for the most part pursued skills associated with badminton and netball.

Other active pursuits in relation to which youngsters sought to develop their skills included riding a bicycle or tricycle (Ryan, R/A-1/II/120, Anna, R/C-1/II/62, Maggie, Y1/A-1/II/119) and driving a pedal car (Anna, R/C-1/II/62). These examples form two of several instances in which

young children desired instruction in the effective use of machines given to them as presents and involving some physical effort. Youngsters also aimed to enhance their skills in roller blading (Alison², R-Y2/G-1/FG/1), skateboarding (Clark², R-Y2/G-1/FG/1), skipping (Mary, Y3/G-1/II/3) and trampolining (Lesley, Y9/B-3/II/78, Zoe, Y9/B-3/II/79). The roles of ice skating (Maggie, Y1/A-1/II/119, Helena, Y6/D-2/II/20, Michelle, Y13/B-3/II/89), swimming (Karen, Y1/G-1/II/7, Josie, Y2/A-1/II/110, Joe, Y3/C-1/II/50, Candice Y5/D-2/II/17, Helena, Y6/D-2/II/20) and gymnastics (Alice³, Y3-Y4/A-1/FG/12, Linda, Y7/C-2/II/36) in the lives of youngsters varied. Some considered them simply recreation, whilst for others they were competitive sports. Candice was also keen to learn life-saving water skills that she hoped to use in her future career.

Several youngsters sought information in response to certain difficulties that had hindered them. Alison's principal concern lay in "how to stay up" on her roller blades. Even a few young children were able to identify deficiencies in what they were doing and to recognise that instruction was needed to avoid their problems. Determined to improve her skipping ability, Mary indicated how "every time I nearly jumped over, it [the rope] kept on getting stuck under one of my legs";

⇒ *creative*, embracing music, drama, fine art and crafts. Within the overall group, there were clear divisions on the basis of age. Among some older informants, skills associated with drama (Candice, Y5/D-2/II/17, Zoe, Y9/B-3/II/79, Liana, Y13/B-3/II/90) and musical instruments (Zack, Y5/C-2/II/27, Emily, Y10/B-3/II/82, Eileen, Y12/B-3/II/66, Duncan, Y12/B-3/II/84) figured prominently, yet no first schoolers reported seeking to develop their abilities in these areas. Conversely, younger informants showed a greater interest in making and modelling, in which they were attempting to create a tangible end product, than did their older fellows. A few youngsters sought information on the construction of particular artefacts, such as model planes (Barry, Y2/A-1/II/112, Adrian, Y10/B-3/II/73). Instances also emerged where a specific craft skill was needed in a certain situation. Rosemary (Y8/D-2/II/98) described how, in creating a basket for an aunt's birthday, she wanted to know the most effective method of mounting pressed flowers on it. Other individuals (Don, Y2/G-1/II/4, Isaac, Y5/D-2/II/101, Kirsty, Y8/D-2/II/99) were more broadly concerned with art and craft and sought inspiration as well as instruction on "making" techniques;

⇒ *academic*, addressing literacy and numeracy. Without a specific requirement from school to do so, some youngsters attempted to develop their skills in calculation (Gavin, Y1/G-1/II/24, Francesca, Y2/G-1/II/5, Barbara, Y4/G-1/II/22) and handwriting (Francesca, Y2/G-1/II/5);

⇒ *caring* for animals. Chantal^R (R-Y2/G-1/FG/1), one of the youngest informants expressing a self-initiated information need, explained how she wished to understand how to look after her pet. Similarly, Lesley (Y9/B-3/II/78) was keen to know about the most effective ways of caring for her cats. The focus of Hilary's (Y6/D-2/II/18) interest was somewhat different as, although she wanted to learn of the skills associated with horse care, she did not herself own any such animal;

⇒ *exploitative*, involving the effective use of tools and equipment, including home computers (Karen, Y1/G-1/II/7, Naomi, Y5/D-2/II/12) and the "chocolate factory" recently given to Gerald (Y1/G-1/II/8) as a present;

- *circumstantial*. Here youngsters had chosen to involve themselves in activities which necessitated that they learn particular skills. The category differs from self-initiated skills in that the youngsters' primary

interest lay in the work itself rather than in developing skills. Nathan^R (R-Y2/A-1/FG/11), for example, required instruction in the use of basic gardening equipment whilst helping members of the family redesign his grandfather's garden. Norman (Y8/D-2/II/106), who was eight years older, reported how, after joining the Junior Army Training Corps, he had needed "to find out how to shine my boots".

Motivation for seeking skills of own volition

Where youngsters indicated reasons for seeking skill-related information of the self-initiated type, their motivations fell into seven categories:

- ⇒ *intrinsic pleasure/satisfaction* (Russell⁴, Y3-Y4/C-1/FG/6, Emily, Y10/B-3/II/82, Duncan, Y12/B-3/II/84);
- ⇒ *competition/public performance*. Some of those pursuing sporting skills either had competitive aspirations and wished to play in a team when they were older (Derek, Y2/G-1/II/6) or were teenagers who already did so (Michelle, Y13/B-3/II/89). In the same way, a few, like Eileen (Y12/B-3/II/66), took their music skills sufficiently seriously to participate in formal concerts;
- ⇒ *as part of a wider interest*. The enthusiasm of Barry (Y2/A-1/II/112) for learning how to make model aeroplanes was part of an overall interest in flight. Similarly, Karen (Y1/G-1/II/7) was intrigued by how various products around her were manufactured and wanted to know how to make some for herself;
- ⇒ *in imitation of others*. Gavin (Y1/G-1/II/24) was keen to further his mathematical skills in order to emulate older siblings undertaking work of this kind. Likewise, Francesca's (Y2/G-1/II/5) interest in "knowing how to write" was a consequence of her desire to perform similar skills to her parents;
- ⇒ *to impress others*. Mary (Y3/G-1/II/3) highlighted Danielle, a classmate, as "really good at skipping" and wanted to develop her own abilities so that "when I'm a little bit more better I can show Danielle how good I am";
- ⇒ *attraction of skill utility*. A few youngsters wanted to learn a certain skill because they saw its value in meeting a need. Gerald (Y1/G-1/II/8) recalled how, after receiving a "chocolate factory" as a present, he was unable to make use of it until he was provided with instruction, and Rosemary (Y8/D-2/II/98) needed to know the best method of mounting flowers on a basket that she had made as this was to form a gift for her aunt. Some youngsters were guided by less immediate considerations. Naomi (Y5/D-2/II/12) explained that her enthusiasm for learning computer skills stemmed from her belief that "you can use them [computers] to find lots of things out and they can help you with your homework and for your education";
- ⇒ *career aspirations*. Candice's (Y5/D-2/II/17) desire to develop life-saving water skills derived from her enthusiasm to be a paramedic, and Hilary's (Y6/D-2/II/18) interest in horse care was rooted in her ambition to be a vet.

Although the reasons for desires to learn particular skills were clearly wide-ranging, the nature of the second, fourth and fifth motivations emphasises the importance of the youngster's social world in shaping his or her attitudes.

g) **School-related subject information.** This may be divided into two broad areas - school-required and school-inspired.

- ***School-required*** information was needed by youngsters to fulfil obligations to school, usually by a particular deadline. The information may be grouped into four categories - that for use in immediate end products, “in the head” information, information for understanding and information for purposes unknown:

⇒ *information for use in immediate end products*, in which often detailed information was required for the production of specific, forthcoming work. For older informants, the information was usually required for a particular curriculum area, such as History or Geography, whilst the cross-curricular way in which many first schoolers were taught meant that they did not always see their topic as lying within a broader curriculum subject. The younger pupils’ needs also often related to general, long-term “projects” rather than individual essays or reports. Irving (1985: 41-42) and Sheingold (1987: 81) note the popularity within schools of work of this nature. A further difference that emerged between older and younger participants lay in the fact that much of the school-required information sought by younger children related entirely to facts, whereas high schoolers reported seeking these *and* analyses, theories and interpretations. Fourie and Kruger (1995: 246) have reached a similar conclusion in relation to secondary school pupils in South Africa. In this respect, the needs of young pupils were usually for “declarative” information of the type noted by Bereiter and Scardamalia (1989: 373), involving simply “knowing that...”. The very youngest informants did not report requiring information for school at all. This is consistent with Gross’s (1998: 156) findings. She discovered that imposed transactions in the school library “barely existed for the youngest students”. The needs pertaining to particular curriculum areas are described below.

- ◊ In English, information needs overall were very diverse, although, among first schoolers, they were generally limited in scope. Two youngsters tackling spelling assignments (Wes, Y4/C-1/II/51, Wendy, Y4/C-1/II/53) reported needing information about the meanings of certain words so that they could write sentences that included them. Similarly, Jeremy (Y5/C-2/II/28) described homework in which he was presented with a list of words that he had to define. Since, in both the middle and high school phases, however, work relating to a wide range of topics was used to develop pupils’ skills in reading, writing and presentation, information needs were not limited to certain areas. One project involved the writing of an autobiography (May, Y7/C-2/II/34), in which the youngster was instructed to collect information relating to herself and the family. At School B-3, Year Ten youngsters were given the opportunity to select topics of their choice for talks to their classmates. Those chosen were as varied as “roller coasters” (Ross, Y10/B-3/II/72), “the legalisation of marijuana” (Adrian, Y10/B-3/II/73) and “witch-hunts” (Emily, Y10/B-3/II/82). One girl, Lesley (Y9/B-3/II/78), received additional English teaching from a tutor outside school and described how a recent assignment related to “twentieth century inventions”. Asked to select two for detailed examination, she opted for cinema and television.

Information needs specifically in terms of English Literature were narrower, typically addressing set books (Jeff, Y9/B-3/II/77, Toby, Y11/B-3/II/87, Duncan, Y12/B-3/II/84, Tessa, Y13/B-3/II/75), short stories (Glynis, Y10/B-3/II/81, Toby, Y11/B-3/II/87) or poems

(Scarlett, Y10/B-3/II/80, Duncan, Y12/B-3/II/84). Jeff reported that in his case the questions related to the recall and significance of events within “Twelfth Night”, and Scarlett described needing to know “the meaning of the poem” she had been reading. In some cases needs emerged in the face of set questions that had to be answered for homework (Duncan, Y12/B-3/II/84). Some of those pursuing the subject at “A” Level also required information about other works written by a particular author and the major themes within them (Tessa, Y13/B-3/II/75), whilst others merely wanted more detail about the work they were reading (Duncan, Y12/B-3/II/84). Occasionally youngsters found themselves venturing beyond the traditional boundaries of the subject of English and exploring other disciplines. Toby (Y11/B-3/II/87), asked to produce a proposal for a stage production of “Macbeth”, spoke of how he had to investigate elements “of drama and performance”. According to Windschitl (1998: 28), such emphasis on “multidisciplinary tasks” is pivotal to “new conceptions of learning”.

Advanced English Language information needs were highlighted by Michelle (Y13/B-3/II/89). She identified the key areas in which information had recently been required as those concerned with “language acquisition by children, gender differences in their language and changes in their language over time”. Michelle contrasted the type of information that was required in English Language with that in one of her other subjects, Business Studies. Whereas the latter demanded factual knowledge, much of the information pertaining to English Language involved theories.

- ◊ In Science, topics included living things, scientific phenomena and processes. The only topic in which needs emerged for youngsters from all school phases was that of the human body. Vicky⁴ (Y3-Y4/G-1/FG/2) explained how, in School G-1, Year Four pupils undertook projects devoted to particular organs. Elsewhere, needs often emerged in response to specific questions. Bridget⁵ (Y5-Y6/D-2/FG/3) and Frank⁵ (Y5-Y6/D-2/FG/3) highlighted work in which they had to label the bones and muscles of a human skeleton. Some youngsters had to answer questions about a certain part of the body, like teeth (Larry, Y5/C-2/II/26, Zack, Y5/C-2/II/27, Suzanne, Y6/D-2/II/21). Larry’s task involved “naming them and saying where they are”. Questions relating to processes within the human body also arose. Madeleine (Y5/D-2/II/15) recalled one pertaining to the digestive system: “Imagine you are a biscuit that has been eaten. Where would you go in the body and what would happen to you?” Occasionally information was needed about external processes affecting the human body, such as injections and vaccinations (Jean, Y11/B-3/II/70).

In first schools, after the human body the topic of animals generated the most information needs addressed in Science. In School A-1, information was required in a project where “you had to think of an animal, study it and then write down as many facts as you could about it” (Dominic, Y4/A-1/II/116). Similar work took place in School C-2, although here youngsters were given specific aspects to cover. Linda (Y7/C-2/II/36) described how she was asked to address such issues as “what food they eat, habitat and behaviour”. Across the two schools, the animals selected included tropical fish (Fiona⁴, Y3-Y4/A-1/FG/12), snakes (Will⁴, Y3-Y4/A-1/FG/12, Damien⁴, Y3-Y4/A-1/FG/12), birds (Dominic, Y4/A-1/II/116), hippopotamuses (Sasha, Y4/A-1/II/117), pandas (Paula, Y4/A-1/II/118), dolphins (May, Y7/C-2/II/34),

polar bears (Maureen, Y7/C-2/II/35), killer whales (Linda, Y7/C-2/II/36) and cats (Gail, Y7/C-2/II/37).

In a project allowing a similar degree of choice, pupils of School D-2 were asked to select space topics for investigation. Those nominated included nebulae (Alistair, Y5/D-2/II/105), the sun (Anneka, Y6/D-2/II/19), the planets of the solar system (Neville⁸, Y7-Y8/D-2/FG/10), UFOs (Rosemary, Y8/D-2/II/98) and the moon (Kirsty, Y8/D-2/II/99). The broadness of the subjects chosen varied considerably and Neville's was especially wide. Like animals, outer space was an area on which youngsters across different schools sought information. At the other middle school in the study, Pauline (Y6/C-2/II/30) reported how "in Year Five we did a study of space and we had to write up a project on one planet".

Most of the remaining topics were mentioned by single informants. Ewan (Y6/C-2/II/42) recounted how he had sought information on the process of dissolving, and Joe (Y3/C-1/II/50) on static electricity. The latter provided an unusual instance of information being sought to explain a phenomenon observed in the classroom but not seen within a formal scientific experiment. Joe recalled the origin of his need: "My teacher had a piece of transparent paper and made it stick to a book and we had to go home and find what was making it stick."

Much Science work undertaken by middle and high schoolers involved writing up experiments staged at school and supplementing the accounts with background material. To accompany a report on a Biology experiment, Duncan (Y12/B-3/II/84) needed "specific information about maggots [the subject of the experiment] and how they react to light". The information had to go "beyond the basics that have been covered in class". Occasionally raw data was required. Darren⁸ (Y7-Y8/C-2/FG/5) described how, for one homework assignment, he was asked to read his domestic electricity meter and calculate how much it would cost for ten appliances of a particular type to be run.

- ◇ In Geography, information needs chiefly emerged in relation to particular places, communities of people and geographical features and phenomena. Pamela⁸ (Y7-Y8/C-2/FG/5) considered Geography to stimulate more information needs than any other curriculum subject and the remaining members of her focus group agreed that "a lot of your own research is needed for the subject". Many of the places about which information was sought were local. Alexandra⁶ (Y5-Y6/D-2/FG/3) described a project in which pupils could select for themselves a town of interest, the girl herself choosing Seahouses. Other youngsters were obliged to find information on a local area nominated by the teacher. Pamela⁸ (Y7-Y8/C-2/FG/5) and Dennis (Y8/C-2/II/40) were among those asked to undertake a project on Rothbury. In the same way, Jean (Y11/B-3/II/70) was given the topic, "land-use in Whitley Bay", and was expected to supply information relating to certain aspects within this overall theme.

Some youngsters found themselves having to undertake in-depth writing on particular foreign countries. The work followed a similar pattern to that devoted to local areas. Some were given the freedom to select any country they wished. This was the case within School C-1, where the informants chose Egypt (Kylie⁴, Y3-Y4/C-1/FG/6), Brazil (Russell⁴, Y3-Y4/C-1/FG/6), Scotland (Siobhan⁴, Y3-Y4/C-1/FG/6), the United States of America (Wes, Y4/C-

1/II/51), New Zealand (Joan, Y4/C-1/II/52) and Australia (Wendy, Y4/C-1/II/53). Elsewhere, information was sought on a country determined by the teacher (Isaac, Y5/D-2/II/101). In some instances members of a class studying a single country were asked to find answers to specific questions. Work on Japan was mentioned by Toby (Y11/B-3/II/87). Here, however, the information sought related to a question demanding analysis as well as facts - "What problems of pollution have been caused in Japan by the massive growth of industry in the last half century?" This in-depth, focused question contrasts sharply with the general, explorative work characteristic of younger children learning about a certain country. Such a difference in expectations among teachers is consistent with Gross's (1998: 170) observation that teachers of older pupils set more advanced work and are more rigorous in their requirements.

Geographical phenomena accounted for many information needs. Jean (Y11/B-3/II/70) described a project involving water features, in which Niagara Falls was given particular emphasis, whilst Shane⁷ (Y7-Y8/D-2/FG/10), Dirk (Y7/D-2/II/94), Kieron (Y7/D-2/II/96) and Andrea (Y7/D-2/II/97) recalled recent work they had undertaken on volcanoes. In the latter instance they had been asked to answer in detail five questions: "What is a volcano?", "What happens when a volcano erupts?", "How do volcanoes affect people?", "Are there any volcanoes currently erupting?" and "Choose a volcano in the world. What can you find out about it?" Kieron reported that he was now tackling similar work that addressed the same areas in relation to earthquakes.

Another task involving the answering of "five key questions" was mentioned by Norman (Y8/D-2/II/106). This related to a particular community of people - Brazil's Kalapalo Indians. The questions were devoted to the life and traditions of the tribes themselves, the resources available to them and their utilisation (Lionel, Y8/D-2/II/102, Louis, Y8/D-2/II/103).

- ◊ In History, information needs emerged in relation to past civilisations and dynasties, particular time periods, historical movements and events and key personalities. As with Geography, needs among first and middle schoolers often stemmed from class projects, here devoted to such peoples as the Romans (Alice³, Y3-Y4/A-1/FG/12, Maria³, Y3-Y4/A-1/FG/12, Nancy⁵, Y5-Y6/C-2/FG/4), the Victorians (Damien⁴, Y3-Y4/A-1/FG/12, Wes, Y4/C-1/II/51, Joan, Y4/C-1/II/52), the Ancient Egyptians (Tim⁵, Y5-Y6/C-2/FG/4, Judy, Y5/D-2/II/13), the Aztecs (Nigel, Y5/C-2/II/29), the Vikings (Nigel, Y5/C-2/II/29, Christine, Y5/C-2/II/47) and the Tudors (Candice, Y6/D-2/II/16). On occasion information was required for a highly specific task. Olivia (Y3/A-1/II/114) described how she sought a list of "Roman words" in order to tackle a wordsearch. Sometimes teachers imposed a more precise area for investigation as part of an overall study. Ruth (Y6/C-2/II/31) outlined how, within a larger project on the Tudors, her class produced work on fashion in the period. Elsewhere, youngsters could select a particular aspect for personal consideration within a more wide-ranging investigation. Joan (Y4/C-1/II/52) examined Victorian schools within the context of "the Victorians", and Lynne (Y3/C-1/II/49) nominated the topic of Crystal Palace in relation to the same subject. In all these cases information of the "factual" kind described by Taylor (1991: 230) was needed for "representation" by the youngsters in written pieces of their own. This situation is similar to that

outlined by the American Library Association (1989: 95), which describes the frequency of assignments in which pupils are asked simply "to regurgitate data from... sources". At first or middle school level, the only instance where historical information was not needed for this purpose was described by Maria³ (Y3-Y4/A-1/FG/12), whose class had been asked to find material to inform their design of a monument to be built at the end of Hadrian's Wall and which they were to construct in a forthcoming Design Technology session. The fact that the information was not needed for written work was confusing to Corey³ (Y3-Y4/A-1/FG/12), who thought that it must be less important and did not undertake the task.

Older informants generally described needs relating to events, rather than civilisations. One such subject was the English Civil War (Patrick⁸, Y7-Y8/C-2/FG/5, Kay, Y8/C-2/II/44, Tanya, Y8/C-2/II/46). According to Tanya, the aspects of interest were "what happened, the events and dates". High schoolers often required more specific information on a particular aspect of an event. Greg (Y9/B-3/II/76), for example, was investigating "the Home Front during the Second World War" or, as he termed it, "general life and death for ordinary British people at the time". Frida (Y9/B-3/II/63), undertaking similar work, described how even within this topic certain areas had to be addressed, like "the Blitz" and "evacuations". Only the oldest informants sought information relating to a stipulated period, with Harrison (Y12/B-3/II/85) describing needs pertaining to "nineteenth century politics in the era of Gladstone and Disraeli". Once more, teenagers required analysis and interpretations as well as facts. Glynis (Y10/B-3/II/81) needed information on the origins of the troubles in Ireland, and Harrison (Y12/B-3/II/85) on "the rise of Hitler and Nazi Germany". Although the latter formed the broad focus for History work in class, specific essays demanded particular cause and effect analysis. One posed the question, "'Hitler came to power on a wave of nationalist uprising.' To what extent do you agree with this statement?" Only one informant reported being allowed to identify her own historical topic of interest for investigation. Tessa (Y13/B-3/II/75) selected the French Revolution, although even here the scope of her work was stipulated. Specifically, she was asked to address "the origins of it and how it came about".

Naomi (Y5/D-2/II/12) recognised that information relating to "famous people in history" had been required throughout the academic year so far, with each individual studied within the context of the wider historical picture. A similar pattern emerged in relation to Henry VIII (Sandra⁶, Y5-Y6/C-2/FG/4), Napoleon Bonaparte (Sandra⁶, Y5-Y6/C-2/FG/4), Oliver Cromwell (Patrick⁸, Y7-Y8/C-2/FG/5) and Benito Mussolini (Zoe, Y9/B-3/II/79). Zoe's subject emerged from a situation in which pupils were asked to produce work on the life of any Allied or Axis leader during the Second World War. Sometimes the study of a particular individual formed one element in a project addressing a range of aspects. In successive weeks, Cathy (Y6/C-2/II/32) had been asked to find out about Henry VIII, his wives, the Tudor Rose and games of the period to complement work in class on the Tudors. Although information needs involving particular people appeared in several curriculum areas, those pertaining to History were most common.

- ◊ In Modern Foreign Languages, information needs emerged in terms of vocabulary (Jean, Y11/B-3/II/70, Eileen, Y12/B-3/II/66, Joy, Y12/B-3/II/67) and life within the countries of interest. With regard to the latter, Eileen drew attention to the importance of following news “stories about Germany”.

Occasionally pupils needed information that did not pertain to the language or country under scrutiny but provided a stimulus for activities. Such needs may be termed “ancillary”. Rosemary (Y8/C-2/II/98) explained how, in French, pictures were often required to initiate work in the subject.

- ◊ In Religious Education (RE), information needs pertained to specific religions, Biblical issues and characters and religious events. At School C-2, two major projects demanded considerable investigation on the part of the pupils. The first involved work on the Islamic pilgrimage, or Hajj (Maureen, Y7/C-2/II/35, Linda, Y7/C-2/II/36, Clint, Y7/C-2/II/38). For this assignment, Clint sought information “all about Muslims and how they have to go to Mecca”. The second project was a multichapter “life of Jesus” (Pamela⁸, Y7-Y8/C-2/FG/5, Darren⁸, Y7-Y8/C-2/FG/5, Patrick⁸, Y7-Y8/C-2/FG/5, Dennis, Y8/C-2/II/40), tackled by the oldest pupils.
- ◊ In Personal and Social Education (PSE), a wide range of needs was encountered. For the most part, these pertained to moral issues, such as “war crimes and their punishment” (Francis⁸, Y7-Y8/D-2/FG/10) and “children’s rights” (Rosemary, Y8/D-2/II/98), to health and lifestyle matters, like the dangers of smoking (Maureen, Y7/C-2/II/35), drugs and their abuse (Linda, Y7/C-2/II/36, Bill, Y7/C-2/II/39, Neville⁸, Y7-Y8/D-2/FG/10) and “safe sex” (Benny⁹, Y9-Y11/B-3/FG/8), or to government and politics, including the policies of the major political parties (Ed⁹, Y9-Y11/B-3/FG/8). Again, some of these were class projects in which a given issue was addressed by everyone, whereas in other cases youngsters chose their own topics. The latter situation prevailed in School D-2, where some of the topics selected related to none of the areas generally associated with PSE. Indeed, Rosemary (Y8/D-2/II/98) explained how “you could do whatever you felt strongly about”. As in some English work, the subject was used by the teacher to develop information retrieval and presentation skills rather than to facilitate the learning of subject content. The topic investigated by Kirsty (Y8/D-2/II/99), that of ghosts, was very much her own choice.
- ◊ In Design Technology (DT), information was sought about products with a view to youngsters isolating their characteristics and designing their own (Andrea, Y7/D-2/II/97). Materials that could stimulate ideas for the making of one’s own product were also sought. Where provision was made in a lesson for the development of such ideas, these situations are beyond the scope of the study. Attention is directed to instances in which youngsters considered this provision insufficient and looked elsewhere, in their own time. Rosemary (Y8/D-2/II/98) explained how, in a project in which she was involved, “if you wanted stuff really detailed, you would have to do it at home ‘cos you didn’t have time at school. We only had one lesson”. Kirsty (Y8/D-2/II/99) recalled how she and her colleagues were presented with a scenario in which they were asked to make an animal-related souvenir for a gift shop. Initially they were to generate an idea and then

produce designs. In most cases this was done in class but, as Kirsty had been absent, she required her own material to stimulate ideas.

- ◊ In Art, just one information need was reported. Here Ed⁹ (Y9-Y11/B-3/FG/8) required pictures of animals in order to inspire his design for a badge as part of a project devoted to logos.

Some subjects were studied only by high schoolers and were more limited in the range of youngsters they affected in terms of information needs.

- ◊ In Sociology, information needs arose in relation to the perspectives of different commentators (Tessa, Y13/B-3/II/75, Marcus, Y13/B-3/II/92).
- ◊ In Business Studies, practical examples were sought to complement the principles learnt in class (Antony, Y13/B-3/II/74, Michelle, Y13/B-3/II/89, Wayne, Y13/B-3/II/91). Antony drew particular attention to the importance of remaining up-to-date with current events in the financial world.
- ◊ In General Studies, information needs were very wide-ranging. Indeed, Michelle (Y13/B-3/II/89) considered that they embraced “most other subjects of the curriculum”. For her, these needs were regular and intensive, since each week she was required to undertake an essay that demanded information retrieval.
- ◊ In Textiles, two situations giving rise to information needs were reported. Bob (Y9/B-3/II/64) described a multidisciplinary project in which “you had to research a holiday - the price, where you would like to go, how you would get there... That sort of stuff”. Variables such as the place and the number of people involved were determined by the pupil. In the other project, Julia¹¹ (Y9-Y11/B-3/FG/8) and Petra¹¹ (Y9-Y11/B-3/FG/8) conducted a study of fashion in an era of their choice and constructed a garment of the period. Here, information was required for two purposes - for re-presentation in a portfolio devoted to the fashion period and to inform the youngster’s own creative work.
- ◊ In Food Technology (FT), again only two situations from which information needs derived were reported. Mandy (Y11/B-3/II/69) described an assignment in which she investigated the dietary requirements of those suffering from coeliac disease. The illness had been selected by the pupil. Martin’s (Y11/B-3/II/87) information requirements proved to be among the most diverse of any youngster engaged in work for a single assignment. Asked to produce a design proposal for a “meal for one”, Toby found himself seeking information on recipes, food hygiene laws, nutrition, packaging and expectations of potential consumers. Some information needs emerged in response to specific questions he formed during the project, such as “Should a meal for one be half the size of an existing meal designed for two people?” Toby was the only youngster who, when carrying out school assignments, generated his own questions at the outset of his work to guide his inquiry in the style advocated by information skills instructors (Liesener, 1985: 17, Stripling and Pitts, 1988: 69-71, NCET, 1993: card 4, Doyle, 1994: 18-19, the Assiniboine South School Division, 2000, the Qualifications and Curriculum Authority, 2000). A possible explanation for the rarity of question generation among youngsters is provided in the work of Lyons et al (1997: 14), who recognise that the method is unnatural to many as they are not required to ask their own questions in most classroom activities.

- ◊ In Graphic Design, information needs involved the investigation of the characteristics of perfume packaging (Jean, Y11/B-3/II/70). This work was very like that of the middle schoolers requiring product-related information for DT.
- ◊ In Drama, factual information was needed by youngsters both to increase their understanding of existing dramatic productions and to help them add authenticity to their own work. Emily (Y10/B-3/II/82) experienced needs in each area. In the first, she was exploring “the boundaries of reality... what’s the difference between when you’re dreaming and what is real” in order to further her understanding of a piece of drama. The second need arose in connection with a role-playing scenario in which Emily, taking on the part of a drug-taker, was attempting to persuade others to take drugs. To render the production more realistic, Emily “had to find out what people use to take drugs and how they act”.

In the above breakdown, needs are arranged within the curriculum subjects in which they emerged. Certain topics, however, cannot easily be pigeon-holed. Indeed, drugs-related information was required by pupils studying English, PSE and Drama. The fact that, in some subjects, youngsters were given the opportunity to select any matter for study further emphasises the difficulty in mapping topics to individual curriculum areas.

The extent of a youngster’s obligation with regard to the information need varied. Where time in class was allocated for a project, it was not always explicitly stated by teachers that information should also be sought outside the lesson but some pupils either felt obliged to do so or were keen to make additional effort (Ruth, Y6/C-2/II/31). Some teachers indicated that work was “optional”. Emily (Y10/B-3/II/82) recounted how, in Drama, she and her colleagues had been asked to address the difference between dreams and reality “if you want to”. Her decision to pursue the work came about not from a sense of duty but because “I can’t use the phone tonight and I’ve got nothing better to do”;

- ⇒ *“in the head” information*, in which information was required for memorisation and ultimately for use in a test situation. Many researchers addressing young people’s information needs pay scant attention to this area, although Latrobe and Havener (1997: 190) recognise its importance when they write of needs emerging in relation to “test preparation”. Among young children this often took the form of learning assigned spellings (Gaynor, Y1/C-1/II/58, Edgar, Y2/A-1/II/111, Mary, Y3/G-1/II/3, Wes, Y4/C-1/II/51, Wendy, Y4/C-1/II/53), “number bonds” (Francesca, Y2/G-1/II/5) or multiplication tables (Francesca, Y2/G-1/II/5, Kenneth, Y3/C-1/II/48, Wes, Y4/C-1/II/51). There was, once more, greater diversity in older informants’ “in the head” information needs. Senior first schoolers were required to learn particular material for class tests, a requirement that continued in the next two phases. Reported tests in the first and middle schools were devoted to subjects such as Science (Larry, Y5/C-2/II/26), Geography (Eric, Y8/C-2/II/41) and RE (Rod³, Y3-Y4/G-1/FG/2).

The information to be learnt by high schoolers was that covered in particular syllabuses and tested in national exams. Some youngsters revising for certain exams sought additional information on matters that were unclear to them. Antony (Y13/B-3/II/74), for example, described how he had “needed to clear up a few things about calculations to do with radioactivity”. Several undertaking modular “A” Level courses (Gareth¹², Y12-Y13/B-3/FG/9, Gus, Y12/B-3/II/65, Bradley¹³, Y12-

Y13/B-3/FG/9, Michelle, Y13/B-3/II/89), in which testing was not restricted to the end of their studies, believed that the process of having to learn information for the exams was unceasing. As Bradley explained, "That's inevitable when you do the work for the module then have an exam on it." These situations resembled those in the first and middle schools in which youngsters were tested on what they had learnt at the end of half a term or the study of a particular topic. At "A" Level, Modern Foreign Languages were seen to demand constant learning of vocabulary throughout the two years (Eileen, Y12/B-3/II/66, Joy, Y12/B-3/II/67). A comparable situation emerged with English. Here Joy spoke of the need for "background reading" to boost the width of her knowledge and for use in the exam. This situation contrasted with that of Toby (Y11/B-3/II/87), whose "in the head" information needs for GCSE English were limited to the set books;

⇒ *information for understanding*, in which youngsters wanted information for school, on their own initiative, in order to advance their prospects of future success in the subject. Two types of situation emerged:

◊ exploration. Here the information pertained to a topic recently introduced in class. Year Eight pupils in one focus group were particularly likely to seek this kind of information. Patrick⁸ (Y7-Y8/C-2/FG/5) attributed his tendency to read around a topic after an introductory lesson to a desire to "understand it better". He elaborated, "If you don't do it, you're the one who's going to lose out by not knowing";

◊ general preparation. The same youngsters outlined how such reading might continue as work on the topic proceeded in class. Pamela⁸ (Y7-Y8/C-2/FG/5) thought that the additional work rendered her well placed in the event of an assignment being set but, at the time of the reading, no such task had been specified;

⇒ *information for purposes unknown*. In one instance pupils were asked to find particular information, although the teacher gave no reason. Christine (Y5/C-2/II/47) recalled how she was required to compile a list of "what comes from Egypt". She later learnt that the facts she had discovered were needed neither for a class test nor for written work but were used by the teacher to initiate a discussion on the country which formed the subject of the pupils' latest geo-historical study;

- *School-inspired* information relates to particular topics addressed in class. Here the youngster's need to find out did not derive from a sense of duty or a direct requirement to satisfy an obligation but simply from an urge to learn more about a subject. Sometimes the topic had been broadly addressed at school and youngsters wanted to follow up particular aspects in detail. For others, the focus was more general and any information on the topic was welcomed. Most school-inspired needs were reported by first and middle schoolers and in the former case usually related to topics that they had studied as class "themes" over prolonged periods.

Origins

Some first schoolers' school-inspired needs (Sasha, Y4/A-1/II/117, Joan, Y4/C-1/II/52) began when they had become so enthusiastic about a topic that they brought to school items pertinent to it. Gross (1998: 137) has also noted the prevalence of this behaviour. Joan explained, "In Year Two we were working on endangered species and I bought a few things in. That was the first time I became interested

in animals.” Joan’s school work subsequently led her to investigate of her own volition endangered species such as elephants and birds. Elsewhere, the fact that the pupil had brought items to school was not because an interest in the topic had been stimulated but was merely the result of a school topic coinciding with one of the youngster’s own interests. For other informants, interest in a school topic did not *begin* with their bringing materials to school. Indeed, Frank⁵ (Y5-Y6/D-2/FG/3), whose enthusiasm was aroused by school work on Muslims, searched for information first and then showed his teacher the materials he had assembled. Sasha (Y4/A-1/II/117) described a similar process.

Subjects

The majority of school-inspired needs related to history. Topics included the Nativity (Gerald, Y1/G-1/II/8), the Romans (Olivia, Y3/A-1/II/114, Curtis, Y3/A-1/II/115, John³, Y3-Y4/G-1/FG/2), “cave men and cave men times” (Curtis, Y3/A-1/II/115), the Egyptians (Curtis, Y3/A-1/II/115, Piers, Y5/D-2/II/104), the Victorians (Lynne, Y3/C-1/II/49), the Tudors (Christine, Y5/C-2/II/47), the Trojan War (Piers, Y5/D-2/II/104), the Spanish Armada (Pauline, Y6/C-2/II/30) and the French Revolution (Kevin, Y7/D-2/II/95). Several informants, such as Curtis and Piers, mentioned multiple areas of history. Nicholas² (R-Y2/C-1/FG/7) spoke of his general interest in this subject, although he singled out the Stone Age as of particular appeal. Whilst historical topics were popular among both girls and boys, many of those favoured by males involved conflict. Indeed, Nicholas attributed his enthusiasm for history to the fact that “in old fashioned times there were lots of wars” and, within his overall interest in the Romans, Curtis was especially fascinated by their slingshot weapon. Curtis was not alone in expressing a particular interest in a small area of a wider school topic. His classmate, Olivia, who was similarly interested in the Romans, wanted to know “how people would live in Roman times and how slaves would be treated”.

Aside from historical topics, outer space (Gavin, Y1/G-1/II/24, Austin, Y3/G-1/II/23, Sasha, Y4/A-1/II/117, Ian⁴, Y3-Y4/G-1/FG/2) and the human body (Glenn, Y1/A-1/II/113, Gavin, Y1/G-1/II/24, John³, Y3-Y4/G-1/FG/2, Vicky⁴, Y3-Y4/G-1/FG/2, Colin⁴, Y3-Y4/G-1/FG/2, Barbara, Y4/G-1/II/22, Vanessa, Y5/D-2/II/14) were highly popular. In relation to the latter, certain topics were again of special interest, in Gavin’s case “cells” and in Vicky’s “how we see”. Although the Children’s Literature Research Centre (1996: 216) suggests that interest in the human body is heavily linked to the stages of biological development youngsters are experiencing, in the Whitley Bay study the fact that all non-homework related instances in which material on the human body was wanted were nonetheless school-inspired indicates that curiosity stimulated by work at school proved a more significant motivating factor. The remaining school-inspired topics reported were “our neighbourhood” (Steven, R/C-1/II/60), “endangered animals” (Joan, Y4/C-1/II/52), “Muslims” (Frank⁵, Y5-Y6/D-2/FG/3) and “Hinduism” (Suzanne, Y6/D-2/II/21).

Reasons for elevation of school topics to subjects for school-inspired information

Where youngsters conveyed reasons for their enthusiasm for certain topics, six areas of explanation emerged:

- ⇒ *novelty*. Some topics tackled at school were new to youngsters and stimulated them. John³ (Y3-Y4/G-1/FG/2) and Kevin (Y7/D-2/II/95) explained their interest in the Romans and the French Revolution respectively in this way. According to the John, "Before we started, I knew nothing about the Romans, so I was dead interested to find out more about them." This response in itself is inadequate since many subjects are new to pupils, yet they do not arouse the urge to learn more about them. John was, however, unable to explain the basis of his interest further;
- ⇒ *relevance to self and own situation*. Young Steven's (R/C-1/II/60) interest in the neighbourhood developed after a class project on the subject. This had involved the construction of a wall map which "has got my house in it". The fact that the topic of the human body also attracted great interest may again be partly attributed to the enthusiasm of some youngsters for subjects relating to themselves, although no informant specifically stated this;
- ⇒ *congruence with own inclinations and interests*. Kevin (Y7/D-2/II/95) indicated that he found stories of executions "like where at the guillotine they slice through people's heads" especially appealing, and the fact that history dealt with past wars was considered interesting by Nicholas² (R-Y2/C-1/FG/7);
- ⇒ *resolution of gaps*. Occasionally after a subject had been addressed at school a key issue remained unclear to a pupil. Piers (Y5/D-2/II/104) admitted how, during recent work on the Trojan War, he was unsure of the role of the wooden horse. Gaps of this kind were not always the result of shortcomings on the part of the youngsters but arose from deliberate omissions by the teacher, who would address them in a future session. Gerald (Y1/G-1/II/8), for example, described his interest in "The Christmas Story", which was being taught in three parts by his teacher. Unwilling to wait until the second week, Gerald wanted to know about the rest of the story after his teacher had covered part one. Elsewhere, school-inspired information needs emerged when a particular issue provoking the curiosity of a youngster had been left unresolved after the teaching programme. Ian⁴ (Y3-Y4/G-1/FG/2), although generally interested in space, was especially keen on knowing "How many stars are there in the galaxy?";
- ⇒ *stimulation from school trips*. Olivia (Y3/A-1/II/114) explained how she "really got to like the Romans" when she had visited a Roman fort at Arbeia;
- ⇒ *form of presentation by teacher*. Some youngsters pursued topics of their own volition because the tasks presented by the teacher in class had been appealing. This was true of Year Four youngsters at School G-1, where they had been asked to produce work on organs of their own choice within the human body. Vicky⁴ (Y3-Y4/G-1/FG/2) explained that her interest in the topic had developed after being given the freedom to explore aspects on her own. Her teacher (T/G-1/II/13) considered Vicky's view to be typical, arguing that many pupils became interested in a topic when they had been afforded a high degree of ownership in producing their work.

Curtis's (Y3/A-1/II/115) motivation was unique. Outside school, he pursued information on a range of topics dealt with in class, not only because he found them interesting but because he wanted to impress his peers with what he knew. "I like to know more about what I'm doing so I can... go into school and tell things that I've learnt about," he admitted. Curtis wanted to be seen to be knowledgeable and to maintain a reputation that he believed he had already acquired: "Some people say that I'm one of the

best people in the class and it's nice when they ask me about things." Thus to Curtis, the actual topics were not, in themselves, of sole importance. The same was true of Vanessa (Y5/D-2/II/14), although her motivation was different. "I just like finding things out," she explained. Vanessa's enthusiasm related to process, not product.

A few youngsters, especially in the early years, indicated that, although they enjoyed certain topics at school and some even nominated "favourite projects", they felt no inclination to know more (Len¹, R-Y2/C-1/FG/7, Gaynor, Y1/C-1/II/58, Daisy², Y2/C-1/FG/7, Lynne, Y3/C-1/II/49). Other, older pupils, like Dominic (Y4/A-1/II/116) and Christian (Y4/G-1/II/2), indicated that school-related information needs never developed for them unless they were obliged to find out for their work.

A key pattern to emerge was the fact that many first schoolers required information relating to subjects tackled at school, either on their own initiative or in response to obligations for assignments. This runs somewhat contrary to Kuhlthau's (1988c: 55) observation that such needs tend to emerge during the early stages of *secondary* education;

h) **interest-driven information.** Here informants, acting entirely on their own initiative, sought, usually over a prolonged period, information on topics that held personal appeal and were unrelated to school work. Like category (g) information, this material may be understood as largely "subject knowledge", although differences emerged in the topics pursued, the seeker's motivation and the use made of the information. Furthermore, much interest-driven information involved only facts, not interpretations and analyses. In many cases, especially those of younger informants, needs were unfocused, with *any* material on the broad subject of interest being welcome. Kuhlthau (1988c: 54) suggests that such behaviour is typical of children up to approximately nine years of age. Most needs were for in-depth information, although a few were of a quick reference type. Two distinct types of interest-driven information may be identified - topic-based and genre-based:

- **topic-based.** The most frequently occurring of the two forms, this addressed specific subjects. Fifteen areas emerged - living things/life processes, environments, man-made products, medicine, understood natural phenomena, the unknown, history, places, sport, non-sporting outdoor pursuits, non-sporting entertainment-related areas, professional matters, literature, regular societal events and moral debates:
 - ⇒ *living things and life processes.* Animals in general were often a subject of interest (Tony, Y2/C-1/II/54, Francesca, Y2/G-1/II/5, Maria³, Y3-Y4/A-1/FG/12, Kylie⁴, Y3-Y4/C-1/FG/6, Diane, Y4/G-1/II/1, Judy, Y5/D-2/II/13, Vanessa, Y5/D-2/II/14, Sandra⁶, Y5-Y6/C-2/FG/4, Cathy, Y6/C-2/II/32, Helena, Y6/D-2/II/20). Related topics of a broad character included pets (Chantal^R, R-Y2/G-1/FG/1, Mary, Y3/G-1/II/3), "nature" (Joshua³, Y3-Y4/C-1/FG/6, Madeleine, Y5/D-2/II/15, Harvey, Y6/C-2/II/33) and "wildlife" (Kenneth, Y3/C-1/II/48). More usually, however, specific animals or animal types were indicated, such as lions (Dean¹, R-Y2/A-1/FG/11), snakes (Dean¹, R-Y2/A-1/FG/11, Hilary, Y6/D-2/II/18), wolves (Gerald, Y1/G-1/II/8), cats (Edgar, Y2/A-1/II/111), dolphins (Meredith, Y2/C-1/II/56, Siobhan⁴, Y3-Y4/C-1/FG/6, May, Y7/C-2/II/34), birds (Don, Y2/G-1/II/4, Joshua³, Y3-Y4/C-1/FG/6, Fiona⁴, Y3-Y4/A-1/FG/12), elephants (Paula, Y4/A-1/II/118), dogs (Madeleine, Y5/D-2/II/15), lizards (Hilary, Y6/D-2/II/18), horses (Anneka, Y6/D-2/II/19) and whales (Francis⁸, Y7-Y8/D-2/FG/10). Dinosaurs formed a recurring topic of interest among first school youngsters (Nathan^R, R-Y2/A-1/FG/11, Melissa, R/A-1/II/121, Anna, R/C-1/II/62, John³,

Y3-Y4/G-1/FG/2), especially those in the early years. Although Francis⁸ (Y7-Y8/D-2/FG/10) was keen to know about wildlife generally, a certain whale was of special interest to him, that upon which the story of the film, “Free Willy”, was based. Francis had followed the life of the whale up to the current situation where he was being trained to hunt for himself before being released into the wild. The popularity of animals as subjects for information-seeking was especially apparent among first and middle school girls. This gender-based pattern has also been evident in research by the Department of Education and Science (1984: 16, 17), Dunster (1984: 12), the Children’s Literature Research Centre (1996: 216, 218) and Chance (2000: 23), yet Fasick and England (1977: 17), Overmyer (1995: 39), Fieguth and Bußmann (1997) and Bennett (1998: 24) refer to the general popularity of animals without reference to a gender split. Where animals were mentioned by boys in the study, they were often of a savage nature, like wolves, snakes and lions. Gerald (Y1/G-1/II/8) explained how he was especially keen to know “about who eats who”. He clarified by providing some examples, “A wolf eats a deer... an elephant eats a snake.” Not all enthusiasm for living things was restricted to fauna, however. Judy (Y5/D-2/II/13) and Rosemary (Y8/D-2/II/98) articulated a considerable interest in flowers;

⇒ *environments*. These may be subdivided into

- ◊ real life, such as outer space (Gavin, Y1/G-1/II/24, Edgar, Y2/A-1/II/111, Piers, Y5/D-2/II/104), jungles (Edgar, Y2/A-1/II/111) and “the sea” (Diane, Y4/G-1/II/1) or “sea topics” (Curtis, Y3/A-1/II/115). Whilst all three informants expressing an interest in space were male, the Children’s Literature Research Centre (1996: 216) has found no gender differences in the levels of interest shown in the subject;
- ◊ fantasy worlds. In this case the youngster sought information about imaginary environments, such as the world in which the role-playing game, “Dungeons and Dragons”, is set (Harvey, Y6/C-2/II/33). Harvey was particularly interested in one of the “character class rangers”;

⇒ *man-made products*. In terms of technological artefacts, computers in general were of interest to Jeff (Y9/B-3/II/77) and Antony (Y13/B-3/II/74), whilst Naomi (Y5/D-2/II/12) was keen to know “how they work”, and Greg (Y9/B-3/II/76) spoke enthusiastically of his eagerness to increase his knowledge of the uses that might be made of programs. Among first and middle school boys, transport themes frequently emerged. These included trains (Glenn, Y1/A-1/II/113), “flight” (Barry, Y2/A-1/II/112), tanks (Isaac, Y5/D-2/II/101) and “aircraft” (Douglas, Y7/D-2/II/93, Dirk, Y7/D-2/II/94). The last two topics can be seen to involve a military element, which, again was characteristic of many boys. Males’ interest in transport-related topics is consistent with findings by Hill and Pain (1988: 33) and Dunster (1984: 7, 12). Environmental constructions were also highlighted, with Barry (Y2/A-1/II/112) interested in houses and, most especially, “how to build them”, and Penelope (Y2/C-1/II/55) wanting information on the Millennium Dome. In particular, she was keen to learn about “all the things they have in it, when it was invented, when they’re going to pull it down”. Once more, gender patterns emerged in relation to this overall category. Penelope was one of the very few female youngsters to profess an interest in man-made products;

⇒ *medicine*, both traditional (Piers, Y5/D-2/II/104) and alternative, such as homeopathy (Norman, Y8/D-2/II/106);

- ⇒ *understood natural phenomena*. The areas specifically addressed were fossils (Melissa, R/A-1/II/121), volcanoes (Tony, Y2/C-1/II/54, Dominic, Y4/A-1/II/116, Sasha, Y4/A-1/II/117), rivers and waterfalls (Penelope, Y2/C-1/II/55) and tornadoes and hurricanes (Sasha, Y4/A-1/II/117);
- ⇒ *the unknown*. This topic consisted of two aspects - unexplained phenomena, such as ghosts (Tony, Y2/C-1/II/54, Kirsty, Y8/D-2/II/99), unidentified flying objects (Rod³, Y3-Y4/G-1/FG/2, Rosemary, Y8/D-2/II/98) and "extra-terrestrial life forms" (Louis, Y8/D-2/II/103), and "what it might be like in the future" (Tim⁵, Y5-Y6/C-2/FG/4). The second area differs from the first in that it may be considered to be of Taylor's (1991: 230) "projective" type, rather than embracing accepted facts. The popularity of the topics, "ghosts and the supernatural" and "the unknown", has also been noted by the Department of Education and Science (1984: 17) and Dunster (1984: 12) respectively;
- ⇒ *history*. Areas included past events, such as the Great Fire of London (Tony, Y2/C-1/II/54) and the sinking of the "Titanic" (Gillian⁵, Y5-Y6/D-2/FG/3), and particular civilisations or dynasties, like the Stuarts (Tony, Y2/C-1/II/54), the Egyptians (Christine, Y5/C-2/II/47) and North American Indians (Kieron, Y7/D-2/II/96). Certain types of people and objects caught the imagination of some youngsters, such as Kieron (Y7/D-2/II/96), who described how knights and castles in medieval times were of great interest to him. Others were more concerned with generic themes. Lionel (Y8/D-2/II/102) described his fascination with war. Harvey (Y6/C-2/II/33), too, was eager to learn about war but was narrower in his focus. He was particularly fond of "ancient battles", especially those involving swordfights. Once more an interest in situations of conflict is clearly recognisable among boys. Dunster (1984: 12) has also found warfare to be a popular subject among young males. Whereas most were able to isolate a given era, event or theme of particular interest, Christine (Y5/C-2/II/47) indicated a general enthusiasm for history, She did, however, suggest that she was more interested in "old age things", relating to life "say two hundred years ago, rather than fifty years ago" and information about "old age galleons" and the Egyptians was especially appealing to her;
- ⇒ *places*. Most of these took the form of other countries. Sometimes a range was mentioned by single informants (Alice³, Y3-Y4/A-1/FG/12, Malcolm⁶, Y5-Y6/C-2/FG/4), although Edgar's (Y2/A-1/II/111) interest was limited to Japan and Tim⁵'s (Y5-Y6/C-2/FG/4) to Jamaica. The information Malcolm sought relating to the different countries was similar, addressing in each instance such issues as population and surface area. Only Meredith (Y2/C-1/II/56) was interested in a place that was not foreign. She described her focus as "life in Britain" but it seems unlikely that she actually desired information on so wide a topic. Perhaps she lacked the linguistic skill to express her area(s) more precisely. This would be consistent with Cooper's (1996: 49) observation that young children "have a limited vocabulary and it may be difficult for them to verbalize... what it is they want to see. They may know specifically what they want, however, they do not yet know the word for it". Callaghan (1983: 55) draws attention to a similar problem;
- ⇒ *sport*. Many sports were of interest to the youngsters. These included those played by teams, such as football (Rupert, Y1/C-1/II/59, Alan¹, R-Y2/G-1/FG/1, Victor², R-Y2/A-1/FG/11, Tony, Y2/C-1/II/54, Austin, Y3/G-1/II/23, Jim Y5/D-2/II/100, Charles⁷, Y7-Y8/C-2/FG/5, Douglas, Y7/D-2/II/93, Dirk, Y7/D-2/II/94, Pamela⁸, Y7-Y8/C-2/FG/5, Louis, Y8/D-2/II/103, Maurice, Y11/B-

3/II/86, Craig, Y11/B-3/II/88), rugby (Sean, R/G-1/II/25, Brian¹, R-Y2/G-1/FG/1, Jim, Y5/D-2/II/100), hockey (Pamela⁸, Y7-Y8/C-2/FG/5) and basketball (Patrick⁸, Y7-Y8/C-2/FG/5), and a variety of motor sports. In the latter case interests related to “racing cars” (Barry, Y2/A-1/II/112, Eric, Y8/C-2/II/41, Harrison, Y12/B-3/II/85), “motor bike racing” (Isaac, Y5/D-2/II/101) and “bike trials” (Isaac, Y5/D-2/II/101). Antony (Y13/B-3/II/74) was the sole informant to indicate that he was interested in “most sports” but even he singled out “football, tennis and golf” as holding particular appeal. Sporting interests formed another area in which most instances were reported by boys. Indeed, Isaac’s sporting enthusiasms, when considered alongside “tanks” - his other major area of interest - can be seen to be stereotypically “boy” subjects. Marshall (1975: 137), Fasick and England (1977: 7, 19, 20, 26), the Department of Education and Science (1984: 16, 17), Dunster (1984: 7), Hill and Pain (1988: 33), the Children’s Literature Research Centre (1996: 216, 218), Fieguth and Bußmann (1997) and Chance (2000: 21-23) have also found sports-related topics to be especially popular among young males. No evidence emerged to support Marshall’s (1975: 146) view that enthusiasm for sport diminishes during the teenage years.

Whilst a general interest in a certain sport was often articulated, some informants identified highly specific areas. Alan¹ (R-Y2/G-1/FG/1), whose liking for football was in its infancy, wanted to know “what the rules were”. This reflected his rudimentary understanding of the game. Victor² (R-Y2/A-1/FG/11) was especially interested in the football results “and, like, who scored”. Antony (Y13/B-3/II/74) spoke keenly of the importance he attached to knowing “what’s going on, the latest news and results” in a range of sports. The fortunes of the local club, Newcastle United, generated fierce enthusiasm (Rupert, Y1/C-1/II/59, Tony, Y2/C-1/II/54, Jim, Y5/D-2/II/100, Charles⁷, Y7-Y8/C-2/FG/5, Douglas, Y7/D-2/II/93, Pamela⁸, Y7-Y8/C-2/FG/5, Patrick⁸, Y7-Y8/C-2/FG/5, Louis, Y8/D-2/II/103), although interest was also expressed in the country’s biggest club, Manchester United (Bob, Y9/B-3/II/64). In relation to the north-western side, Bob wanted to know “team news and things about the players”. Tony’s interest was unusual in that, as well as wanting current news relating to Newcastle United, he was eager to learn of past players and their achievements. Austin (Y3/G-1/II/23) was keen to know about famous contemporary players, especially Michael Owen, Alan Shearer and Gary Speed, two of whom played for Newcastle. A similar concern with local matters pertaining to a favourite sport was expressed by Pamela⁸ (Y7-Y8/C-2/FG/5), who was interested in north-eastern hockey clubs;

⇒ *non-sporting, outdoor pursuits*, such as fishing (Zack, Y5/C-2/II/27);

⇒ *non-sporting entertainment-related areas*. Films, music and television held much appeal. These areas may be considered a major part of the dimension of “pop-culture” noted by Herman (1983: 77) to be highly important to youngsters.

◊ Films. Corey³ (Y3-Y4/A-1/FG/12) and Damien⁴ (Y3-Y4/A-1/FG/12) drew attention to a particular production, in their cases “Star Wars”, as a topic about which they wanted to know more. Shane⁷ (Y7-Y8/D-2/FG/10), a fan of “horror movies” generally, also singled out one, “H₂O”, of special interest. Piers (Y5/D-2/II/104) and Jean (Y11/B-3/II/70) were more broadly interested in the latest films to have made an impact at the cinemas, and Alistair (Y5/D-2/II/105) was keen to know about how such movies had been made. Francis⁸ (Y7-Y8/D-

2/FG/10) was unique in expressing an interest in a certain theme associated with popular culture - "how films have treated aliens". Generally, informants concentrated on certain movies, rather than an overarching picture. This is comparable to the way in which Oliver and Perzylo (1994: 226) note how, when asked to formulate questions for investigation devoted to mammals, most of their youngsters chose to study a particular animal in detail, rather than examine a generic issue pertaining to a range of mammals;

- ◊ Music. Where certain forms of music were indicated, these were "pop" (Jean, Y11/B-3/II/70, Toby, Y11/B-3/II/87, Liana, Y13/B-3/II/90) and rap (Eric, Y8/C-2/II/41). Only one youngster was interested in a certain act, Siobhan⁴ (Y3-Y4/C-1/FG/6) speaking of her enthusiasm for the group, Sive. The Department of Education and Science (1984: 17), Dunster (1984: 7, 12), Hill and Pain (1988: 33) and Fieguth and Bußmann (1997) have also found the topic of "pop" music to be of interest to many young people;
- ◊ Television. Information needs relating to television were diverse. Material devoted to particular activities featured on programmes was required by Victor² (R-Y2/A-1/FG/11), specifically in connection with "Blue Peter", "Two Fat Ladies" and "Jamie, the Naked Chef". A similar need, once more pertaining to "Blue Peter", was described by Eve⁷ (Y7-Y8/C-2/FG/5). Again in relation to a given programme, Shane⁷ (Y7-Y8/D-2/FG/10) wanted to know what had happened in an episode of a soap opera he had missed the previous night. Certain shows had attained "cult" status and some youngsters wanted to know more about them. This was particularly the case with "Pokemon" (Damien⁴, Y3-Y4/A-1/FG/12, Will⁴, Y3-Y4/A-1/FG/12, Nigel, Y5/C-2/II/29, Rick⁷, Y7-Y8/D-2/FG/10) and "EastEnders" (Pamela⁸, Y7-Y8/C-2/FG/5). Tessa (Y13/B-3/II/75), a "Star Trek" devotee, was more focused in her needs. She was mainly concerned with "behind the scenes stories" and information about how the show was made.

Several information needs associated with television took the form of quick reference questions. Beverley (R/A-1/II/109) wondered "what time 'Stars in their Eyes' and 'Blind Date' will be on television", and a similar interest in the times of programmes and schedules was reported by Eve⁷ (Y7-Y8/C-2/FG/5), Neville⁸ (Y7-Y8/D-2/FG/10) and Frida (Y9/B-3/II/63).

As several youngsters referred to needs involving particular films, "pop" acts and television programmes, it would appear that it is in relation to non-sporting entertainment that "vogue interests" of the kind identified by Fasick (1985: 17) seem most likely to emerge. This was especially true of "Pokemon", around which a cult had clearly developed;

- ⇒ *professional matters*. Hilary (Y6/D-2/II/18) and Louis (Y8/D-2/II/103) sought information about particular areas of employment, although their needs were contrasting, the former being eager to learn about the work of vets, and the latter about business management, or, more particularly "how to cope with your company and get round your boss";
- ⇒ *literature*, especially the work of poets past and present (Toby, Y11/B-3/II/87);
- ⇒ *regular societal events*. Only one instance of this kind was described, involving the winning numbers for the National Lottery draws (Sally², R-Y2/A-1/FG/11);

⇒ *moral debates*. Adrian (Y10/B-3/II/73) sought information relating to arguments surrounding the legalisation of the drug, marijuana;

- *genre-based*. Here a youngster indicated a need for information on a very general area, and the topics of interest within it were many and varied. Kevin (Y7/D-2/II/95) was keen on current affairs, or, in his own words, “things that are happening now”. This cannot be considered a topic in the sense of those above, since his interest did not relate to one particular event, nor was it confined even to a broader area like politics or sport. In the same way, Judy (Y5/D-2/II/13) described how she enjoyed learning of “true stories about young people”. Again, in terms of topics, such an area is difficult to pin down, as it embraces so many disparate areas, Judy herself suggested aspects as contrasting as problems and achievements. The appeal of a theme such as this is recognised by Amey (1986: 11), who writes, “There is no topic of greater interest to teenagers than teenagers.”

Almost always the information required by the informants for their own interest was not to be deliberately learnt. It was sufficient simply to find a source providing what was wanted and occasionally create some form of copy. The need was for what might be termed “on demand access”.

Motivation

Most youngsters found it difficult to convey reasons for their enthusiasm for particular subjects. Superficial explanations such as “I just like it” were common. Other informants struggled when making more ambitious attempts. Edgar (Y2/A-1/II/111), who wanted to know more about Japan, could volunteer only, “Well, it seems a nice place so I like it.” Christine (Y5/C-2/II/47) tried to identify the origin of her interest in the Egyptians: “I just liked the idea of this great race of people, with a strong empire, that worshipped gods and buried the dead and built huge statues and things.” It would appear that it was the *scale* of the civilisation and artefacts that had caught her imagination. Where youngsters identified reasons for their enthusiasm for particular subjects, their responses fell into one of seven categories:

- *career aspirations*. Hilary (Y6/D-2/II/18) was keen to learn about animals and the work of a vet because she wanted to pursue employment in this area when she grew older. Cathy’s (Y6/C-2/II/32) interest in animals was similarly motivated. In the same way, Piers (Y5/D-2/II/104) attributed his enthusiasm for medicine to his desire to become a surgeon. The question emerges, however, whether it was the career aspiration that determined the interest as the youngsters claimed or if it was, in fact, their enthusiasm for a certain area that led to their ambitions for a related career;
- *personal ties*. Many first schoolers developed interests in an area because of its connection with their own experience. Sometimes enthusiasms arose after visits to places (Penelope, Y2/C-1/II/55, Olivia, Y3/A-1/II/114). Another situation in which the initial stimulus came from the world known to the youngster emerged when Melissa’s (R/A-1/II/121) interest in fossils was triggered by purchasing one from a souvenir shop. First-hand experience of animals also led to interests. Edgar’s (Y2/A-1/II/111) urge to learn about cats came from the fact he often saw a neighbour’s cat in his garden and Siobhan’s (Y3-Y4/C-1/FG/6) enthusiasm for dolphins developed after she had had the opportunity to train them in America. One of Sally’s (Y-Y2/A-1/FG/11) interests derived from the fact that her family had a financial stake in the subject. Her desire to know the National Lottery numbers after each draw resulted from the fact that her mother regularly purchased a ticket;

- ***past stimulation.*** In this case youngsters had gained some knowledge of a subject in the past, often via the mass media, had enjoyed what they had learnt and had wished to know more. No first-hand experience was involved. Among young children, Tony (Y2/C-1/II/54) outlined how his interest in the Stuarts and the Great Fire of London resulted from his receiving a book on the subject, and Sasha (Y4/A-1/II/117) wanted to know more about volcanoes after seeing them on television. In the middle school phase, Louis's (Y8/D-2/II/103) interest in business management initially arose from his amusement at the "Dilbert" books read by his father. In the same way, Rosemary's (Y8/D-2/II/98) fascination with UFOs had developed from reading one particular book that she had enjoyed: "I got that book out the library about UFOs 'cos it looked interesting on the cover and, when I started reading it, I got attached to that book and wanted to read more about UFOs." In a more oblique situation, Kevin (Y7/D-2/II/95) attributed his enthusiasm for current affairs to his playing the game, "Monopoly", which had aroused his curiosity in the world beyond his immediate experience.

Whilst the sources initiating the above interests were found in the youngster's day-to-day environment, in some instances the stimulus was more external and might be considered high profile "world events". Brian¹'s (R-Y2/G-1/FG/1) liking for rugby arose from the televised 1999 Rugby Union World Cup, and the publicity surrounding the film, "Titanic", prompted Gillian⁵ (Y5-Y6/D-2/FG/3) to investigate the real life incident. The way in which such "world events" generated information needs is consistent with the experiences of the Manager of the West Area of North Tyneside's library service (L/LIB/PI/1). He indicated, "You sometimes get a slight feel for what is hot at a particular time. When the 'pro' wrestling started to take off on the television, we'd get quite a lot of inquiries about wrestling books... Occasionally you get ripples coming out from something that's popular on the television."

- ***personal convictions.*** In the only instance of an informant being motivated in this way, Adrian (Y10/B-3/II/73) was keen to learn more of the debates surrounding the legalisation of marijuana since he himself held strong views on the matter;
- ***emergent from practical tasks.*** Some youngsters developed interests that emerged from other activities. Rosemary (Y8/D-2/II/98) received a flower press as a Christmas gift and, after pressing specimens, sought to label them. In seeking to identify the flowers, Rosemary pursued more information about them. Similarly, the hobby of birdwatching resulted in Joshua³ (Y3-Y4/C-1/FG/6) and Don (Y2/G-1/II/4) wanting to find out more about the different species they had observed. Curiously, although the majority of those indicating animals to be a topic of personal interest were female, the only two youngsters describing birdwatching as one of their hobbies were boys;
- ***influence of others.*** Norman (Y8/D-2/II/106) spoke of how his interest in alternative medicine was stimulated by his mother, herself an enthusiast;
- ***imaginary scenarios.*** Some young children developed subject interests from their own make-believe scenarios. Alice³ (Y3-Y4/A-1/FG/12) often looked at her globe and imagined that she was travelling round the world. Her enthusiasm to learn about other countries stemmed from her fanciful journey.

In all the above cases youngsters were interested in a particular topic and decided, of their own volition, that they wanted to know more. Other informants, while enthusiastic about certain subjects, did not feel an inclination to learn more about them. Indeed, Roger³ (Y3-Y4/C-1/FG/6), who was keen on animals, and Russell⁴ (Y3-Y4/C-1/FG/6), who liked football and was a staunch supporter of Newcastle

United, both claimed that they had never wanted to know more. A similar pattern emerged in relation to societal “cult figures”. Although findings corroborate Marshall’s (1975: 146) assertion that a “hero-worship” mentality exists among youngsters, information needs seldom emerged in relation to the subjects of this admiration and only a few footballers and “pop” personalities were quoted as people about whom the informants wished to know more;

- i) **consumer information.** The scope of this area is concisely summarised by two participants who described their need to “find out more” about particular products (Cameron, Y7/C-2/II/43, Neville⁸, Y7-Y8/D-2/FG/10), with a view to possible purchase. The youngest to seek information of this kind was Joe (Y3/C-1/II/50), who wanted information about “video games” in order to decide “whether I should ask for them if it’s near my birthday or Christmas or if it’s at other times of the year to just save up for them”. An interest in consumer information relating to new computer games was widely held, especially among older boys (Piers, Y5/D-2/II/104, Alistair, Y5/D-2/II/105, Cameron, Y7/C-2/II/43, Dennis, Y8/C-2/II/40, Neville⁸, Y7-Y8/D-2/FG/10, Ed⁹, Y9-Y11/B-3/FG/8, Benny⁹, Y9-Y11/B-3/FG/8, Jeff, Y9/B-3/II/77, Maurice, Y11/B-3/II/86). Often the information sought embraced issues such as the names of games appearing in recent or coming weeks, prices, dates of availability, details of outlets from which they might be obtained and assessments of their quality. Ed⁹, one of several to attach particular importance to reviews, argued that he wanted to see how a certain game was rated by critics before he considered buying it. Antony (Y13/B-3/II/74), too, spoke of how, in the field of computers, he was keen to know “what’s coming out now, whether I’d like to get it”, although he, like Greg (Y9/B-3/II/76), was not interested only in games. Dunster (1984: 7, 12), Waltham Forest Libraries and Arts Department (1986: 42), Hill and Pain (1988: 33) and Fieguth and Bußmann (1997) have also found computers/computer games to be of particular concern to boys.

Whilst computer-based products were easily the most popular subjects for consumer information, many other goods were also of interest. These included books (Toby, Y11/B-3/II/87), music CDs (Melvyn¹³, Y12-Y13/B-3/FG/9), kits and materials for making model planes (Adrian, Y10/B-3/II/73) and new gadgetry (Ross, Y10/B-3/II/72). May (Y7/C-2/II/34) described her love of “Beanies” and wanted to know “what you could get and how to order them”, whilst Shane⁷ (Y7-Y8/D-2/FG/10) talked of his interest in horror movies and how he sought information relating to “which are good and which ones are out on video at the minute. The best ones I’ll try and get to watch”. The fact that the majority of youngsters indicating a need for consumer information was male is consistent with Murray’s (1985: 60, 61) findings. That consumer information needs emerged as a key theme within middle and high school data should not be considered surprising in view of the affluence of the area in which the fieldwork took place. As Walter (1994: 125) comments, “Middle class children often have significant amounts of money to spend.” Montgomery (1996: 72), too, draws attention to the considerable “spending power” of youngsters, even those under twelve years of age.

The products of interest were usually to be purchased by the youngster for his or her own use. Two exceptions emerged, however. Zack (Y5/C-2/II/27) wanted to know about “what’s available” when considering buying Christmas presents, whilst Bill (Y7/C-2/II/39), in a similar situation, spoke of finding out “where the best offer was”;

- j) **self-development information.** This category embraced factual details in support of youngsters' plans for the future, such as information about educational courses offered either at school (Harrison, Y12/B-3/II/85) or by colleges and universities (Michelle, Y13/B-3/II/89, Liana, Y13/B-3/II/90, Wayne, Y13/B-3/II/91, Marcus, Y13/B-3/II/92), prerequisites for applications (Benny⁹, Y9-Y11/B-3/FG/8) and procedures in relation to training (Hilary, Y6/D-2/II/18). Harrison not only wanted to know more about a certain "A" Level course but also the scope for dropping a subject he had begun studying and replacing it with another. Benny, who was looking beyond education, needed to find out the qualifications necessary for a place in an Army Foundation College, and how he should apply. Decisions with regard to future employment were not limited to high schoolers, however. Ten-year-old Hilary, who wanted to work with animals, was interested in such matters as "how long you have to be at vet school". The importance of material on educational courses and employment is recognised in many typologies of youngsters' information needs and, in her own research, DuPree (1989: 31) found information relating to jobs and careers to be considered "important" by more respondents than those indicating any other area. In the Whitley Bay study, however, even teenagers rarely referred to wanting information relating to employment. This reflects the affluence of the geographical area, in which post-sixteen retention rates at school are high and many pupils go on to university. A different pattern of needs within the "self-development" category might emerge in a contrasting inner city area;
- k) **preparatory information.** Two youngsters indicated a need for factual information relating to a forthcoming challenge. Due to appear as a contestant in a television quiz show, Suzanne (Y6/D-2/II/21) was curious as to "what it was going to be like and how many other people would be there". Whereas Suzanne had already agreed to participate, Pauline (Y6/C-2/II/30) sought information on a future event in order to decide on her involvement. Uncertain as to whether or not she should take "an extra SATs paper", she wanted to know "what'll be like and how different it'll be from the usual ones";
- l) **reinterpretations and supplementations,** in which youngsters sought more meaningful reworkings of information already known to them. Usually the information related to work to be done either at or for school. Sally² (R-Y2/A-1/FG/11), Curtis (Y3/A-1/II/115), Will⁴ (Y3-Y4/A-1/FG/12) and Wendy (Y4/C-1/II/53) outlined how, in Mathematics, they had encountered problems in understanding certain questions. Each informant required that the question be rephrased in a way that he or she could understand. A few older youngsters also reported having to seek similar information about what was expected of them for specific assignments when initial instructions had been inadequate (Vanessa, Y5/D-2/II/14, Mandy, Y11/B-3/II/69, Michelle, Y13/B-3/II/89).

Some youngsters required information giving them a greater understanding of subject content that had already been taught. The information sought here may be regarded as "reinforcement". Tanya (Y8/C-2/II/46) needed more information with regard to equations, which she had to tackle in order to complete her Science homework. "I thought I understood them in class but when I got home I found I didn't," she admitted. For Tanya, the use of her knowledge in a practical situation had revealed to her deficiencies in her comprehension. Glynis (Y10/B-3/II/81), too, wanted more information to further her understanding, in her case in History. She explained, "We're doing about Ireland and it's really complicated. It's like he's a Protestant and he believes this then a Catholic comes along and does this. It's so confusing about which side did what and what they believed in."

Victor²'s (R-Y2/A-1/FG/11) reported experiences emphasise the fact that not all needs for reinterpretation and supplementation involve school work. A fan of Western movies, Victor watched them with his father but occasionally did not always fully understand plot developments and needed to "ask Dad questions" so that he could follow the story;

m) **verificational information.** Here the youngster required information to corroborate existing suspicions or beliefs. The category is similar to that of "confirmational" needs outlined by Taylor (1991: 230), and Dervin (1983: 17, 65) refers to a comparable form of information use, "Got Support, Reassurance, Confirmation". All verificational information needed by the participants related to school work. After tackling Mathematics exercises, Candice (Y5/D-2/II/17) always consulted her mother in order to ascertain "if I'm right or wrong". Christine (Y5/C-2/II/47) pursued a similar course of action. Zoe's (Y9/B-3/II/79) concern was not with specific questions but the grammatical correctness of her work. Some wanted to confirm the accuracy of information already obtained from other people. Mandy (Y11/B-3/II/69) outlined how, after asking her father for instruction on how to tackle Mathematics equations, "I do what he says, see what I think and if I'm not very sure I ask the Maths teacher". Similarly, Joe (Y3/C-1/II/50), after learning from his mother the answer to a question for Science homework, consulted his father to establish the truth of what he had been told. In the same way, Bradley¹³ (Y12-Y13/B-3/FG/9) wanted to confirm, via a textbook, the accuracy of notes that he had made at school.

For Louis (Y8/D-2/II/103), verificational information was not restricted to one particular subject. He highlighted a range of situations in which he had formed an idea of what was expected of him but had then sought further information "to check". He described these scenarios as times "when you think you know what to do but you're not quite sure". Jean (Y11/B-3/II/70) used comparable language in describing similar needs, and Liana (Y13/B-3/II/90) also reported how she had wanted to "compare" her understanding of work with that of friends to "check you're doing the right things".

2 PREVALENCE OF THE NEED TYPES

Figure Z lists the need types stated in the typology, together with their major subgroups, indicates the range of year groups in which informants articulated the needs and offers comments on their frequency.

FIGURE Z: PREVALENCE OF NEED TYPES

| Need type | Range | Frequency |
|-------------------------------------|--------|---|
| Advice | | |
| <i>Assignment-specific choices</i> | Y8-Y10 | Three instances |
| <i>Situational problems</i> | Y1-Y13 | Popular among middle schoolers and less frequent among first and high schoolers |
| <i>Leisure</i> | R-Y8 | Popular among first and middle schoolers |
| <i>Health and welfare</i> | Y2-Y12 | A few instances in all phases |
| <i>Finance and money management</i> | Y5-Y7 | Three instances |
| <i>Relationships</i> | Y2-Y6 | A few instances among first and middle schoolers |
| <i>Self-development</i> | Y6-Y13 | All but one of the many instances were among high |

| | | |
|---|--------|---|
| | | schoolers |
| Spontaneous "life situation" information | | |
| <i>Problems</i> | R-Y8 | Popular among first and middle schoolers |
| <i>Curiosities</i> | Y1-Y6 | All but two of the many instances were among first schoolers |
| Personal information | | |
| <i>Relating to self</i> | | |
| <i>present/predictable</i> | Y1-Y7 | Popular among first schoolers but less frequent among middle schoolers |
| <i>projected</i> | Y11 | One instance |
| <i>Relating to others</i> | | |
| <i>present</i> | Y2-Y13 | Several instances in all phases |
| Affective support | | |
| <i>New experiences</i> | Y1-Y8 | Several instances among first schoolers but most popular among middle schoolers |
| <i>Discharge of responsibilities</i> | | |
| <i>school-related</i> | Y2-Y12 | Popular in all phases |
| <i>otherwise imposed</i> | R | One instance |
| <i>self-initiated</i> | Y5-Y13 | Several instances among middle and high schoolers |
| <i>Self-image</i> | Y6 | One instance |
| <i>Social and technical unpredictabilities</i> | R-Y7 | Several instances among first and middle schoolers |
| <i>Illnesses or medical conditions affecting self</i> | R-Y7 | Several instances among first and middle schoolers |
| <i>Personal relationships</i> | Y2-Y8 | Popular among first and middle schoolers |
| <i>Feelings for others</i> | Y2-Y11 | All but one of the many instances were among first and middle schoolers |
| <i>"Phobias"</i> | R-Y6 | Two of the three instances were among first schoolers |
| Empathetic understanding | R-Y13 | Several instances among first and high schoolers |
| Support for skill development | | |
| <i>School-required</i> | | |
| <i>subject-specific</i> | Y1-Y13 | Popular in all phases |
| <i>generic</i> | Y5-Y13 | Popular among middle and high schoolers |
| <i>Otherwise imposed</i> | Y1 | One instance |
| <i>Self-initiated</i> | | |
| <i>active</i> | R-Y13 | Popular in all phases |
| <i>creative</i> | Y2-Y13 | Popular in all phases |
| <i>academic</i> | Y1-Y4 | Four instances |
| <i>caring</i> | R-Y9 | One instance in each phase |
| <i>exploitative</i> | R-Y5 | Two of the three instances were among first schoolers |
| <i>Circumstantial</i> | R-Y8 | Two instances |

| | | |
|---|--|--|
| School-related subject information <i>School-required</i> <i>information for use in immediate end products</i> <i>"in the head" information</i> <i>information for understanding</i> <i>information for purposes unknown</i> <i>School-inspired</i> | Y3-Y13 Y1-Y13 Y8 Y5 Y1-Y7 | Popular in all phases Many instances among first and middle schoolers but most popular among high schoolers Two instances One instance Popular among first and middle schoolers |
| Interest-driven information <i>Topic-based</i> <i>living things and life processes</i> <i>environments</i> <i>man-made products</i> <i>medicine</i> <i>understood natural phenomena</i> <i>the unknown</i> <i>history</i> <i>places</i> <i>sport</i> <i>non-sporting outdoor pursuits</i> <i>non-sporting entertainment-related areas</i> <i>professional matters</i> <i>literature</i> <i>regular societal events</i> <i>moral debates</i> <i>Genre-based</i> | R-Y8 Y1-Y6 Y2-13 Y5-Y8 R-Y4 Y2-Y8 Y2-Y7 Y2-Y6 R-Y13 Y5 R-Y13 Y6-Y8 Y11 Y2 Y10 Y5-Y7 | Popular among first and middle schoolers All but two of the several instances were among first schoolers Popular in all phases Two instances Popular among first schoolers Several instances among first and middle schoolers All but two of the several instances were among first schoolers All but two of the several instances were among first schoolers Popular in all phases One instance Popular in all phases Two instances One instance One instance One instance Two instances |
| Consumer information | Y3-Y13 | All but one of the many instances were among middle and high schoolers |
| Self-development information | Y6-Y13 | All but one of the many instances were among high schoolers |
| Preparatory information | Y6 | Two instances |
| Reinterpretations and supplementations | Y2-Y13 | Several instances in all phases |
| Verificational information | Y3-Y13 | All but one of the many instances were among middle and high schoolers |

3 OTHER GROUPINGS AND THEIR RELATIONSHIP WITH THE NEED TYPES

Dervin and Nilan (1986: 13) distinguish between “objective” and “subjective” types of information. Hord (1995) makes a similar division. The former is defined by Dervin and Nilan as “something that has constant meaning and some element of absolute correspondence with reality”. “Subjective” information may be understood as less hard and fast, involving opinions and interpretations that may vary from one individual to another. Choo (2000: 245) also differentiates between the formal information held in documents and systems and that which is “constructed” by people who create meaning through “thoughts, actions and feelings”. If the “objective” and “subjective” concepts are applied to the types of information need defined in section one, the relationships shown in Figure A¹ may be observed.

FIGURE A¹: RELATIONSHIPS BETWEEN CONCEPTS OF “OBJECTIVE” AND “SUBJECTIVE” INFORMATION AND NEED TYPES WITHIN TYPOLOGY

| Need type | Objective | Subjective |
|--|-----------|------------|
| Advice | | • |
| Spontaneous “life situation” information | • | |
| Personal information | • | • |
| Affective support | | • |
| Empathetic understanding | • | |
| Support for skill development | • | |
| School-related subject information | • | • |
| Interest-driven information | • | • |
| Consumer information | • | • |
| Self-development information | • | |
| Preparatory information | • | |
| Reinterpretations and supplementations | • | |
| Verificational information | • | |

Assessing the origins of information needs, Dervin (1976b: 332) writes that they may be triggered by four different “life situations”: decisions (in which a choice is to be made from the options available), problems (where a barrier stands in the way of an individual’s progress), worries (in which a person is hindered by a lack of predictability or control) and comprehendings (where an individual is seeking to understand). When the typology of need types is mapped against these situations, the pattern shown in Figure B¹ emerges.

**FIGURE B¹: RELATIONSHIPS BETWEEN NEED TYPES WITHIN
TYPOLOGY AND “LIFE SITUATIONS” DEFINED BY DERVIN**

| Need type | Situation(s) responsible |
|--|---------------------------|
| Advice | Decisions |
| Spontaneous “life situation” information | Problems, comprehendings |
| Personal information | Comprehendings |
| Affective support | Worries |
| Empathetic understanding | Comprehendings |
| Support for skill development | Problems, comprehendings |
| School-related subject information | Problems, comprehendings |
| Interest-driven information | Comprehendings |
| Consumer information | Decisions, comprehendings |
| Self-development information | Decisions, comprehendings |
| Preparatory information | Decisions, comprehendings |
| Reinterpretations and supplementations | Problems, comprehendings |
| Verificational information | Problems, comprehendings |

Figure C¹ offers an analysis of how the types within the typology correspond to detailed categories of young people’s information needs identified by previous researchers.

**FIGURE C¹: RELATIONSHIPS BETWEEN NEED TYPES WITHIN OWN TYPOLOGY AND
THOSE DEFINED BY OTHERS**

| Need type | Comparable categories |
|--|---|
| Advice | <p>Elements incorporated within Poston-Anderson and Edwards’s (1993: 26-27) “strategies” categories, “relationships” and “education/work”</p> <p>Elements incorporated within Latrobe and Havener’s (1997: 190) category, “relationships”</p> |
| Spontaneous “life situation” information | <p>Elements incorporated within Minudri’s (1974: 158-59) category, “recreational needs”</p> <p>Elements incorporated within Walter’s (1994: 120) “self-actualisation” and “love and belonging” category, “leisure activities”</p> |
| Personal information | <p>Elements incorporated within Poston-Anderson and Edwards’s (1993: 27) category, “assessments”</p> <p>Elements incorporated within Walter’s (1994: 120) category, “physiological” needs</p> |
| Affective support | <p>Equivalent to Minudri’s (1974: 159) “personal development needs” category, “emotional backup”</p> <p>Elements incorporated within Latrobe and Havener’s (1997: 190) category, “relationships”</p> |
| Empathetic understanding | <p>Elements incorporated within Gratch’s (1978: 19) category, “self-understanding and family problems”</p> |

| | |
|--|--|
| | <p>Equivalent to Poston-Anderson and Edwards's (1993: 26-27) category, "empathetic understanding"</p> <p>Incorporated within Walter's (1994: 120) "love and belonging" category, "emotional awareness", and Latrobe and Havener's (1997: 190) category, "relationships"</p> |
| Support for skill development | <p>Incorporated within Minudri's (1974: 158, 159) categories, "school and curriculum needs" and "accomplishment skills and information needs"</p> <p>Elements incorporated within Gratch's (1978: 19) categories, "crafts and hobbies" and "games and sports"</p> <p>Elements incorporated within Walter's (1994: 120) "self-actualisation" category, "formal education or curriculum needs", "love and belonging" category, "interpersonal skills" and "safety" category, "basic literacy"</p> <p>Elements incorporated within Latrobe and Havener's (1997: 190) category, "course-related information needs"</p> |
| School-related subject information | <p>Incorporated within Minudri's (1974: 158) category, "school and curriculum needs"</p> <p>Elements incorporated within Gratch's (1978: 19) category, "sex education"</p> <p>Incorporated within Poston-Anderson and Edwards's (1993: 26) "education and work" category, "schoolwork"</p> <p>Incorporated within Walter's (1994: 120) "self-actualisation" category, "formal education or curriculum needs" and elements incorporated within her "sex education" category</p> <p>Incorporated within Latrobe and Havener's (1997: 190) category, "course-related information needs"</p> |
| Interest-driven information | <p>Incorporated within Minudri's (1974: 158-59) category, "recreational needs"</p> <p>Elements incorporated within Gratch's (1978: 19) categories, "crafts and hobbies" and "games and sports"</p> <p>Incorporated within Walter's (1994: 120) "self-actualisation" and "love and belonging" category, "leisure activities"</p> <p>Elements incorporated within Latrobe and Havener's (1997: 190) categories, "current lifestyle issues", "health information issues" and "general information"</p> |
| Consumer information | |
| Self-development information | <p>Embracing Minudri's (1974: 159) category, "vocational and career information needs"</p> <p>Equivalent to Gratch's (1978: 19) category, "educational and career opportunities"</p> <p>Equivalent to Poston-Anderson and Edwards's (1993: 26) "education and work" categories, "choosing a career" and "choosing subjects"</p> <p>Elements incorporated within Walter's (1994: 120) "self-actualisation" category, "formal education or curriculum needs"</p> <p>Equivalent to Latrobe and Havener's (1997: 190) category, "future plans"</p> |
| Preparatory information | |
| Reinterpretations and supplementations | |
| Verificational information | |

As can be seen, some need categories, especially those pertaining to skills, subject information for school, information on personal interests and self-development information, have appeared in many previous typologies. They have emerged as standard categories of need that are now generally recognised. Indeed, Marshall (1982: 38) specifically highlights needs within three of these areas, as well as information in response to "personal crises", as particularly commonly experienced by youngsters. Conversely, four types of need have not been explicitly addressed in previous typologies but it is possible that some of their contents may be understood as lying within investigators' existing categories. In particular, much consumer information may be viewed as a part of types devoted to leisure or recreation, although not all youngsters seeking consumer information wanted details of products that they were considering purchasing for their own use. Indeed the fact that some informants were involved in buying presents at Christmas indicates that their motivations arose from their roles and responsibilities in relation to others. Similarly, whilst most needs for reinterpretations and supplementations involved school work, there was one instance that was exceptional and thus the category as a whole cannot be regarded as merely a variety of school-related information. The verificational category is slightly different as all reported needs within this domain involved academic work. Nevertheless, the needs were adjudged sufficiently different in nature from those in all the other categories to merit a discrete group.

Since the principal divisions of the typology are based largely on the purposes for which the information was required, some topics, treated as individual categories in several previous typologies that have pursued a more subject-oriented approach, emerge across different types. Latrobe and Havener's (1997: 190) group, "relationships", for example, includes content that is dispersed within the thesis typology in categories devoted to advice, affective support and empathetic understanding.

4 COINCIDING OF SCHOOL-REQUIRED AND INTEREST-DRIVEN INFORMATION


Instances emerged where information required for school purposes and that sought by participants for their own enjoyment related to the same subject. Sometimes a youngster, asked to investigate for school a subject of his or her own choice, seized the opportunity to select an area of particular interest (May, Y7/C-2/II/34, Rosemary, Y8/D-2/II/98, Kirsty, Y8/D-2/II/99, Adrian, Y10/B-3/II/73). Elsewhere, informants had long-standing interests in certain subjects which they had explored for themselves and which eventually were also addressed at school in class projects (Christine, Y5/C-2/II/47, Piers, Y5/D-2/II/104).

5 SCHOOL-REQUIRED INFORMATION

5.1 Extent of ownership offered to youngsters in relation to tasks

In subject matter, the assignments for which information was sought by youngsters can be placed on a continuum from "open" to "closed". The topic and the focus/foci to be addressed in "closed" assignments were entirely teacher-determined. Conversely, "open" tasks allowed pupils to select both and thus, at least as far as the subject was concerned, the pupils could decide on their information needs for themselves. Consequently, although all youngsters within the class had been presented with the same brief, their subject needs varied markedly from one individual to another. Assignments where pupils could choose their own topics and foci were the nearest to truly "open learning" tasks that were reported. Nevertheless, in all cases the work had to be completed by a given deadline and the form of the end product was usually also predetermined. The "open"/"closed" continuum in terms of subject matter is shown in Figure D¹.

**FIGURE D¹: SITUATIONS OF SCHOOL-REQUIRED INFORMATION NEEDS -
THE “OPEN”/“CLOSED” CONTINUUM**

| Requirement | Actual examples | Continuum |
|---|--|--|
| Information on specified topic with focus/foci specified | <p><i>Answers to specific questions (may be quick reference or more detailed and embrace analysis as well as facts), e.g.</i></p> <p>Labelling skeletal bones and muscles (Bridget⁵, Y5-Y6/D-2/FG/3)</p> <p>“Imagine you are a biscuit that has been eaten. Where would you go in the body and what would happen to you?” (Madeleine, Y5/D-2/II/15)</p> <p>“‘Hitler came to power on a wave of nationalist uprising.’ To what extent do you agree with this statement?” (Harrison, Y12/B-3/II/85)</p> <p><i>Investigation of a highly focused area, e.g.</i></p> <p>Production of work on Tudor fashion (Ruth, Y6/C-2/II/31)</p> <p>Account of land-use in Whitley Bay with reference to housing, tourism, leisure, retailing and education (Jean, Y11/B-3/II/70)</p> | <p>Closed</p>  <p>Open</p> |
| Information on specified topic with own focus/foci; specified areas to be included | Presentation of a plan for a holiday to a place of pupil's own choice, addressing matters such as cost, transport to the destination and facilities available, and the place's geographical location and climate (Bob, Y9/B-3/II/64) | |
| Information on specified topic with own focus/foci; no specified areas to be included | Investigation of the dietary requirements of those suffering from an illness of own choice (Mandy, Y11/B-3/II/69) | |
| Information on own topic drawn from a category, with own focus/foci; specified areas to be included | Investigation of an animal of own choice addressing issues such as food, habitat and behaviour (Linda, Y7/C-2/II/36) | |
| Information on own topic drawn from a category with own focus/foci; no specified areas to be included | <p>Investigation of an aspect of Victorian life of own choice (Lynne, Y3/C-1/II/49)</p> <p>Investigation of a “space phenomenon” of own choice (Alistair, Y5/D-2/II/105, Anneka, Y6/D-2/II/19, Neville⁸, Y7-Y8/D-2/FG/10, Rosemary, Y8/D-2/II/98, Kirsty, Y8/D-2/II/99)</p> | |
| Information on own topic pertaining to the appropriate curriculum area with focus/foci specified | Investigation of an historical event of own choice addressing its causes and origins (Tessa, Y13/B-3/II/75) | |
| Information on own topic with own focus/foci; no specified areas to be included | Investigation of any subject of interest for an English talk (Ross, Y10/B-3/II/72, Adrian, Y10/B-3/II/73, Emily, Y10/B-3/II/82) or PSE project (Francis ⁸ , Y7-Y8/D-2/FG/10, Neville ⁸ , Y7-Y8/D-2/FG/10, Rosemary, Y8/D-2/II/98, Kirsty, Y8/D-2/II/99) | |

Most assignments could be seen in terms of one of the types in the leftmost column. Some, however, incorporated multiple requirements of varying degrees of openness. For example, one that began with four “key questions” on volcanoes, in which pupils were unable to make their own decisions in relation to the topics they were to address, concluded by giving the youngsters the opportunity to write about a volcano of their own choice (Shane⁷, Y7-Y8/D-2/FG/10, Dirk, Y7/D-2/II/94, Kieron, Y7/D-2/II/96, Andrea, Y7/D-2/II/97).

5.2 Topic selection by youngsters

5.2.1 Rationale

Where youngsters were allowed to investigate a topic of their choice and so determine their information needs for themselves, their decisions were influenced by the following factors:

a) **personal interest.** This proved the most popular criterion. For a project on animals Damien⁴ (Y3-Y4/A-1/FG/12) selected snakes because “I like reptiles and cold-blooded creatures”, and Will⁴ (Y3-Y4/A-1/FG/12), who made the same choice, did so because “they’re my favourite animal”. May’s (Y7/C-2/II/34) decision to investigate dolphins arose from the fact that they were of long-standing interest to her and she had “adopted” a dolphin. Like May, Siobhan⁴ (Y3-Y4/C-1/FG/6) had personal ties with her nominated subject, here within the context of a Geography project addressing foreign countries. She selected Scotland “because I used to live there”. The choices of some other youngsters, although still based on interest, were more peripheral. Kylie⁴ (Y3-Y4/C-1/FG/6) opted for Egypt because of her enthusiasm for the Ancient Egyptians, and Russell⁴ (Y3-Y4/C-1/FG/6) Brazil “’cos they’ve got a good football team”. Here the youngsters were less keen about the topic as a whole but wanted to investigate their chosen countries because of their fascination with one particular aspect.

Pupils in the higher phases, too, often selected topics based on personal interest. Middle schooler Kirsty (Y8/D-2/II/99) described why she had nominated “ghosts” for a PSE project: “It was nice to do something that I read about anyway.” Rosemary (Y8/D-2/II/98) selected UFOs as the subject for her talk on “space phenomena” for the same reason. Ross (Y10/B-3/II/72) decided to give his English presentation on roller coasters “because that’s what I’m most interested in”, and Adrian (Y10/B-3/II/73) the legalisation of marijuana “because it’s what I really strongly believe in”. A youngster’s enthusiasm for a particular subject had usually emerged outside school, although some selected topics they had tackled in class during previous years and had enjoyed (Sasha, Y4/A-1/II/117). Others decided on topics about which they knew either nothing or very little but were keen to learn more. Tessa (Y13/B-3/II/75), choosing the French Revolution for scrutiny in her “personal study” in History, admitted, “I only knew vague bits that I’d picked out in the past for my own interest and it was really a case that what I already knew persuaded me to study it further.” Given the opportunity to investigate any aspect of Victorian life, Joan (Y4/C-1/II/52) selected “Victorian schools” as the situation of pupils in the previous century was of considerable interest to her, since she was in a comparable position in a later period. Paula’s (Y4/A-1/II/118) rationale was more vague and she acknowledged that her choice was made simply because she found a particular topic appealing at the time when she was asked to make her decision. She selected pandas as her animal for examination on the basis that “they look nice and eat fresh things”;

b) **availability of information.** The second most popular reason for nominating a certain subject lay in the fact that the pupil knew that relevant information could easily be obtained. This motivation is akin to the

“convenience” considerations highlighted by Hirsh (1999: 1270), although, in this study, the sources were not necessarily available at home; they included books owned by relatives outside the immediate household (Dominic, Y4/A-1/II/116, Fiona⁴, Y3-Y4/A-1/FG/12). For other informants, the information source in mind took the form of people (Joan, Y4/C-1/II/52, Wendy, Y4/C-1/II/53). In most cases the youngsters whose decisions were based on information availability selected their topics soon after being presented with the task, as they formed ideas immediately about the sources they might use. Zoe’s (Y9/B-3/II/79) behaviour was somewhat different, however, as her decision was made after interaction with an information source. Asked to investigate any of the leaders of countries taking part in the Second World War, she entered the term, “war leaders”, when interrogating the “Encarta” CD-ROM and decided to concentrate on Mussolini after discovering that more information appeared to be devoted to him than any of his counterparts in the other countries.

Personal interest and information availability were widely quoted as factors affecting topic selection. Each of the three remaining reasons was articulated by just one informant.

- c) **perceived ease of topic.** Kirsty (Y8/D-2/II/99) selected her particular topic for her “space talk” because she considered it to be less challenging than other potential areas: “I just picked the moon ‘cos it was the easiest. Well, I thought *at the time* it was the easiest.” She explained that, as the moon was a relatively familiar celestial body, it was, to her, “easier”;
- d) **residual memory.** Rosemary’s (Y8/D-2/II/98) choice of topic for a PSE project owed much to a passage in a book that she had discovered by chance weeks earlier and remembered. At the point of needing to determine a subject for investigation, she recalled how she had seen a paragraph in a school textbook beginning with the heading, “Children should have these Rights” and, unable “to think of anything else”, took up the theme;
- e) **advice.** Lesley (Y9/B-3/II/78) adopted a topic that had been recommended by her parents. The work was for an English assignment on twentieth century inventions set by her tutor.

For most youngsters, topic selection was determined by *one* of the above factors, although occasionally several contributed to the decision. May (Y7/C-2/II/34) opted for dolphins as her animals for investigation largely as a result of her interest in them. A secondary consideration, however, lay in the fact that she owned many magazines providing information about dolphins and she anticipated that she could use these for cuttings.

5.2.1.1 In relation to previous research

Youngsters’ reasons for selecting certain subjects largely mirror the results of research by Pitts (1994: 168-72), who found the key motivations of youngsters to take the form of ease of access (which coincides with “availability of information” above), familiarity (which corresponds to “perceived ease of topic”) and interest (which equates to “personal interest”). Heather (1984c: 72), too, has noted the importance of information availability. Nevertheless, significant differences emerge in terms of the findings of other investigators. Friel (1995: 72) stresses the importance of pupils’ consultations with others. Hirsh (1999: 1270) has also found topics to be selected on the basis of personal recommendations as well as according to youngsters’ interests and the known availability of information. Nevertheless, in the Whitley Bay study, advice and ideas from others determined the topic selected in only one instance. Kuhlthau (1988a: 238) lists a range of considerations, some of which again did not emerge as paramount concerns. In addition to acknowledging the roles of “personal

interest” and “information available”, she draws attention to “teacher’s requirements” and “time allotted”. Most pupils indicated an awareness that their topic had to be acceptable to their teacher but no informant suggested that the latter was a consideration to any degree.

5.2.2 Problems and limiting factors

Some youngsters quickly decided on topics once they were told that they could select their own. Adrian (Y10/B-3/II/73) was among the most decisive: “I had mine set out in my head as soon as she said you had to prepare something. It just jumped out.” For others, however, decisions were made much more slowly. According to Joan (Y4/C-1/II/52),

“At first I couldn’t think of a country to choose. I knew that if I chose one country I’d regret it later on... When I was trying to do some research about the country I’d chosen and I was looking in books I was bound to find loads of information about a different country and I’d wish I’d chosen that one. Yeah, it took me ages to decide.”

Rosemary (Y8/D-2/II/98) redefined her topic several times before finalising it. A few had a clear idea of the topic they would *like* to cover but delayed confirming their decisions as they feared the reactions of others. Ross (Y10/B-3/II/72) believed that his selection of roller coasters as the subject for his English talk would be regarded by others as too self-indulgent, and Kirsty (Y8/D-2/II/99), who opted for the topic of ghosts for her PSE project, expected to face ridicule. Burdick (1997: 28) alludes to this problem when she suggests that many youngsters may lack “the personal self-authorization” to make such an individual statement.

Some pupils were slow in making their choices because of impositions made by the teacher. Alexandra⁶ (Y5-Y6/D-2/FG/3) explained that, as “everyone had to do something different” when asked to produce an essay on the north-east region, only those making their decisions quickly had an entirely free choice. Where pupils worked together on other projects, the selection of topic was also limited by the need for its mutual acceptability. In the words of Anneka (Y6/D-2/II/19), who was working with a partner on a study of “space phenomena”, “It had to be something we both wanted to do.”

5.3 Selection of focus/foci

Patterns also emerged in terms of how youngsters treated the specific aspects of their chosen area. These foci were of two broad types:

- a) **undefined.** Here, any information pertaining to the topic was sought, with no areas targeted in advance of information collection (Sasha, Y4/A-1/II/117). This behaviour is consistent with that of young children in work reported by Bereiter and Scardamalia (1989: 370-71). They contrast the tendency of young participants to indicate a general topic to be addressed without reference to its aspects with that of older pupils who typically identify “subtopics” and “components”. The lack of focus of the Whitley Bay youngsters frequently emerged in the absence of guidance from the teacher;
- b) **defined.** Specific foci were determined by two different parties:
 - *by the teacher* (Paula, Y4/A-1/II/118, Wes, Y4/C-1/II/51, Linda, Y7/C-2/II/36, Frida, Y9/B-3/II/63, Bob, Y9/B-3/II/64);
 - *by the pupil.* Where a wide or even free choice of topics was permitted, it was often impossible for the teacher to stipulate from the outset aspects that the youngster should address. If a selected topic were

based on the pupil's interests, he or she would almost inevitably know more about the subject than the teacher and thus be better placed to identify areas for coverage. Even in some situations where the teacher was more tightly in control, such stipulations were still difficult to make. Toby (Y11/B-3/II/87) explained how, when designing a meal for one, his initial choice of meal determined the areas then to be considered: "If you decide to do a meal for a motorway service station, then obviously you wouldn't need information about packaging 'cos you just cook it, put it on a plate and give it to the customer." Where pupils took their own decisions with regard to their topic foci, these were made in two different ways:

⇒ *proactively*. After topic selection, some participants immediately formed in their minds areas to be addressed. Wendy (Y4/C-1/II/53), having nominated her chosen country, wanted to know "things like who discovered it, what sort of animals live there". Pitts (1994: 190) has also found youngsters to use their existing understanding to identify aspects for particular concentration. According to Bereiter and Scardamalia (1989: 374), identification of such areas results from application of high-level schemata or scripts, which enable people to define certain categories of knowledge pertaining to a topic. Toby (Y11/B-3/II/87) was exceptional in his level of planning before information-seeking. Not only did he identify the areas where he considered he needed information but he also represented these on paper in a topic web.

Where youngsters were not permitted to select topics but could determine the aspects to be addressed, their decisions were heavily influenced by what they believed the teacher expected from them. In contrast, pupils' selections of foci in tasks that were entirely open-ended were based on their curiosity and interest;

⇒ *reactively*. A close association between information needs and information-seeking emerged when several participants spoke of how they identified possible areas for investigation after early reading. Joan (Y4/C-1/II/52) gradually came to the conclusion, "I need to find out about food, drink, clothing, animals, towns and industries" in her chosen country. Such behaviour is characteristic of Kuhlthau's (1988a: 239) "focus formulation" stage of her information search process model. Examination of the work of other Year Four pupils at School C-1 revealed that many of them had concentrated on areas similar to those nominated by Joan. This is consistent with Burdick's (1997: 28) observation that "typical" areas for coverage often emerge in pupils' reports.

Paula's (Y4/A-1/II/118) foci arose from both the teacher's instructions and her own ideas. The former initially oriented her but, once underway, she was able to identify for herself further areas in relation to which she believed she should present information.

6 ABSENCES OF RECREATIONAL INFORMATION NEEDS

Virtually all the upper first and middle schoolers drew attention to a variety of recreational information needs, relating to either subject knowledge on topics of interest or the development of particular skills. However, some informants at the two opposing ends of the sample - early years and high school - did not indicate any needs of these types. The reasons for this pattern varied between the two different groups:

a) *early years children*. Although they were keen to know more about personal, "localised" matters, such as family and friends, their immediate environment and events within the home and school, most pupils in Reception and Year One had not yet developed an interest in wider subjects;

b) **high schoolers.** For some youngsters, the demands of school work were such that little time was left for personal interests. According to Keith (Y10/B-3/II/83), who was in the first year of his GCSE courses, "At this stage there's so much to do that you can't really have too many interests beyond homework." The high profile of work for school within the lives of older pupils has been observed over a period of many years by commentators and researchers who include Whitehead et al (1977: 290), Kuhlthau (1987b: 48, 49), Gross (1998: 171) and Dobson (2000: 69). As long ago as the mid 1970s, Whitehead's team referred to the "excessively heavy demands which schoolwork makes upon children's leisure time", and identified intelligent and conscientious youngsters as particular victims. Within the Whitley Bay study, the apparent dedication to academic work of Keith and his colleagues must also be seen within the context of the area in which the fieldwork took place, where teachers' and parents' educational expectations were high.

A further reason for the relative rarity of recreational information needs among some high schoolers lies in the fact that they preferred socialising with friends to pursuing information-oriented hobbies or interests. Scarlett (Y10/B-3/II/80) succinctly expressed the views of several girls when she indicated, "I guess when I'm not doing work for school, most of the time I'm going out with my friends. That's how I want to spend my time."

7 MULTIPLE INFORMATION NEEDS

In many instances youngsters faced several information needs deriving from a particular situation. The sequencing of these needs took two forms - series and parallel:

a) **series.** Here needs formed a chain, with one in particular being felt, the youngster acting upon it, then experiencing a second need again relating to the matter at the heart of the situation and so on. Such chains were of two types:

- *those consisting of needs of a similar type.* The most common series of this kind emerged when youngsters tackled particular work for school and a sequence of needs pertaining to subject information (category (g) information need) was initiated. Where prolonged investigation for a detailed essay was required, several youngsters wanted information in response to increasingly precise aspects as their own understanding of the topic and its issues developed (Joy, Y12/B-3/II/67, Harrison, Y12/B-3/II/85, Tessa, Y13/B-3/II/75, Michelle, Y13/B-3/II/89, Liana, Y13/B-3/II/90, Marcus, Y13/B-3/II/92). These may be termed "progressional subject needs". Faibisoff and Ely (1976: 8), Krikelas (1983: 11) and Westbrook (1993: 542) have also detected the phenomenon. More precisely, Limberg (1999a) recognises how pupils participating in her research initially required information providing them with an overview and orientation, whilst more in-depth detail was wanted later. Friel (1995: 115) has reported a similar progression. Elsewhere, however, significant differences emerged between the results of the Whitley Bay study and those of Limberg. Her teenagers "searched and used information for formulating research questions". In contrast, whilst the early reading of the Whitley Bay youngsters guided subsequent information-seeking and gaps detected in relation to specific aspects directed the attention of the inquirers to the need for more information in these areas, explicit questions of the kind implied by Limberg were very rarely constructed.

In the same way that in progressional subject needs the original information requirement and what was learnt in response influenced what was then wanted, a sequence of needs for spontaneous "life

situation" information (category (b) information need) emerged for Barbara (Y4/G-1/II/22). When reading a book, she encountered an unfamiliar word. She then needed to know what the word was and, as it carried no meaning for her, sought a definition;

- *those consisting of needs of different types.* Some situations triggered a series of needs including needs of two or more different forms. Lesley (Y9/B-3/II/78) sought advice on the topic that she should tackle for an assignment (category (a) information need), followed by subject information on her chosen topic (category (g) information need). For other youngsters, guidance on a decision proved the final element within a sequence that had earlier involved the collection of factual material. Michelle (Y13/B-3/II/89) sought self-development information (category (j) information need) pertaining to courses offered by particular universities before seeking advice on the decision regarding those for which she should apply. Occasionally the chain was cyclical. When faced with Mathematics homework, Christine (Y5/C-2/II/47) required information for skill development (category (f) information need) so that she could tackle the work. She then wanted verificational information (category (m) information need) to determine if her efforts had been effective. On learning that she had made errors, skills information was again necessary and the original process repeated;

b) *parallel.* In these situations, which were much less frequent than needs in series, multiple information needs resulting from a particular situation were felt simultaneously. The needs were more discrete than series needs in that one did not directly affect another. Once more, parallel needs took two forms:

- *those involving needs of a similar type.* Some youngsters required information on different areas of an assignment topic (Toby, Y11/B-3/II/87). These were largely self-contained and could be tackled independently;
- *those involving needs of different types.* Exams, in particular, often involved pupils in seeking subject information for "in the head" purposes (category (g) information need) and affective support (category (d) information need) as youngsters felt stressed (Rod³, Y3-Y4/G-1/FG/2, Eric, Y8/C-2/II/41, Gus, Y12/B-3/II/65).

8 VARIABLES ASSOCIATED WITH INFORMATION NEEDS

The decision was taken to present the typology of information needs provided in section one largely in terms of two variables:

- a) *need type*, reflecting the purpose for which the information was required. This criterion forms the basis of the categories within the overall typology;
- b) *need subject*, addressed in the text, including the subheadings, beneath the main headings.

Although several typologies of youngsters' information needs are based on either need type or subject (Minudri, 1974: 158-59, Gratch, 1978: 17-20, Walter, 1994: 119-23, Latrobe and Havener, 1997: 190-91), to report the needs of the participants in this project solely in terms of these variables is inadequate, as they referred to a range of additional issues that must be appreciated if a "rich picture" of need is to be seen. Choo (2000: 247) writes that experiences giving rise to information needs include elements that relate not only to subject matter but to situational conditions and these too should be considered. Nicholas's (2000: 38) eleven "major characteristics of information need" are representations of these situational issues. Yet, most examinations of young people's information needs do not address such detail. In the late 1980s the

DOMensions Consulting Party Ltd (1989: 1) commented that literature tended to be limited to listing “general areas in which young people reportedly need or require information” and, more than a decade later, little has changed. Most of the additional issues emerging in the project pertained to subject needs, both school-related and interest-driven. These variables are described below:

a) in relation to need stimulus

- *need capture*. Many youngsters sought subject information in response to a desire or awareness within their heads that such material was necessary. Others, however, especially those pursuing information for school, were guided by documentary material, such as an assignment brief, which provided a less subjective construct of the need;
- *specificity*. This may be understood on a scale from high to low. The former end encompasses situations where information was required for the production of a school assignment, the solving of a problem or the making of a decision. “Low specificity” may apply in circumstances where youngsters sought information simply because of a personal interest in a subject. Situations within the middle ground include those in which pupils, realising the need to develop a knowledge of a topic for their studies at school, undertook background reading during their course without purposely revising for an exam;

b) in relation to need development and timescale

- *need anticipation*. Many youngsters were able to define their needs immediately after experiencing the life situation that gave rise to the need, and their searching concentrated entirely on these areas. Some began with a rough idea of the need topic but it was only with time that more detail about it became known to them. Sometimes this was achieved via a photograph. Olivia (Y3/A-1/II/114) required more information relating to a Roman coin, which she photographed, and Joshua³ (Y3-Y4/C-1/FG/6), a keen bird-watcher, took pictures of the creatures as he observed them so that he could find out more about them subsequently. In each case the photograph, when developed, provided further information about the subject of the need.

For other informants, needs relating to certain aspects of the overall subject emerged during the seeking process. This was often the case when a detailed school assignment was being prepared. Needs of a broad nature were initially identified but, when work was undertaken, more specialised information on particular aspects was required. Harrison (Y12/B-3/II/85) explained how, whilst writing an essay on Nazi Germany, he eventually looked for information specifically on areas “that hadn’t been covered particularly well” in sources that he had consulted and the importance of which he now realised.

In two cases unforeseen events outside the youngsters’ control led to “need expansion”. Here aspects of a subject that constituted the need increased beyond the person’s original expectations. Required to produce work on the English Civil War, Tanya (Y8/C-2/II/46) was to have been working with a partner. The pair had divided the topic into areas so that each person was responsible for particular aspects but, when her partner was absent from school, Tanya had little alternative but to investigate the whole topic herself. Similarly, Pamela⁸ (Y7-Y8/C-2/FG/5) recounted how unexpected information needs had arisen after problems during a Geography fieldtrip. Little work had been possible during the visit because it had rained for much of the time. The local studies assignment that had

already been set was then widened to include areas that would have been addressed in the fieldwork had this been possible;

- **topic constancy.** When a particular need emerged in relation to school work, most youngsters sought information solely on the subject nominated by either themselves or their teachers at the outset of the work and their subsequent information-seeking did not deviate from the overall area. A few, however, recalled occasions when the whole topic shifted during the course of the assignment. Usually such “topic reorientation” resulted from the youngster’s redefining the area of need after early information-seeking difficulties. Kirsty (Y8/D-2/II/99) first nominated her subject as poltergeists but, after being unable to find much information, considered it too restricted and widened it to ghosts. This runs contrary to what Irving (1985: 41) considers to be the typical problem for youngsters engaged in work where they select their own topics, namely that the area initially nominated is too *broad*. The same girl encountered a similar problem when investigating a topic relating to outer space. Here, however, she changed the subject considerably, rather than merely widening it. After first selecting the moon for scrutiny, she shifted towards “rockets and things that people use to go into space” because most of the information she had discovered pertained to these areas rather than to the moon. Emily (Y11/B-3/II/82), faced with a comparable situation, took similar action. Her original topic was to be witchcraft but, noting that more material seemed to be devoted to witch-hunts, she, too, changed her area.

The only problem of this kind that emerged in the context of interest-driven needs was experienced by Hilary (Y6/D-2/II/18), who admitted that her “real interest” lay in the work of a vet but, as her CD-ROM discs did not provide such information, her computer-based searches concentrated on animals in general. Needs of this type, where what is actually desired is reshaped by the youngster in accordance with his or her perception of what is available, may be understood as a form of the “compromised need” described by Taylor (1968: 182). Eastman (1986: 220), Friel (1995: 68-69) and Lyons et al (1997: 14) have also found evidence of “topic reorientation”;

- **frequency of need occurrence.** On the basis of how often particular needs arose, three variations of need were detected:
 - ⇒ *one-off.* Many needs, especially those relating to advice, were of this type with information required on a single occasion, often for a highly particular purpose;
 - ⇒ *ongoing.* Here information was required on the same overall subject progressively over a prolonged period of time. Most needs of this type related to support for skill development or subject information on school subjects or matters of personal interest, and involved requirements for information either of increasing detail or on different aspects of a general topic;
 - ⇒ *repeating.* This category is reminiscent of the ongoing type, with information required over a sustained length of time, although it differs in that the same need emerges in bursts in response to events that recur. Examples include needs for sports results (Victor², R-Y2/A-1/FG/11, Antony, Y13/B-3/II/74) and team news in football (Bob, Y9/B-3/II/64);
- **need termination.** In instances in which the need ceased, three patterns emerged:
 - ⇒ *termination on action.* The need continued until it was satisfied by effective information-seeking activity and resolution of the situation triggering the need;

⇒ *termination on event*. The need disappeared with a particular development in the life of the youngster which was outside his or her control. For school-required information, this might take the form of the submission date for an assignment, in the case of advice, the time at which a decision had to be made, or, with affective support, the passing of an event causing anxiety. For some informants, the stage of termination was not clear cut. Penelope (Y2/C-1/II/55) admitted being shy and sought advice on “how to make friends at school”. Only gradually, as youngsters made friends with her, did her need dissipate;

⇒ *termination on interest depletion*. Where information was required on an ongoing basis in relation to a personal interest, the need often continued until the individual’s enthusiasm for the subject waned. Piers (Y5/D-2/II/104) recognised that his interests changed, and drew attention to how his information-seeking was directed towards “anything that was interesting at the time”, as well as other subjects that he considered to be among his long-term interests. In another reference to interest depletion, Zoe (Y9/B-3/II/79) described going to an after-school club until its subject no longer appealed to her. In her own words, “It just became boring”;

- *urgency*. This issue was highlighted by two informants in terms of two very different types of information need. Ross (Y10/B-3/II/72) confirmed his choice of topic for an English talk only the day before it was due to be given and thus required his information for the following day. Although many instances were reported in which youngsters were working to school deadlines, this was the only case where it was specifically stated that the information was needed *urgently*. The second situation involved the need for advice to inform a decision that had to be made “on the spot”. Cathy (Y6/C-2/II/32) described how, when the vet telephoned and asked if she should “put to sleep” her terminally ill rabbit, she required guidance from her mother but “I could only talk for a few minutes because I needed to tell her [the vet] there and then”;

c) in relation to information pertaining to the need

- *accessibility*. Information was required for “in the head” storage when material had to be learnt for tests and exams and when youngsters sought to acquire particular skills. In most cases of interest-driven information needs, however, youngsters were content to find a source that provided them, on demand, with the information they wanted;
- *precision*. The specificity of the information required may, once more, be understood as a continuum. At one extreme, youngsters sought highly focused information relating to quick reference questions, like Ian⁴’s (Y3-Y4/G-1/FG/2) query, “How many stars are there in the galaxy?” General information pertaining to topics may be seen as lying at the opposing end. In one such case Tessa (Y13/B-3/II/75) described how, initially, she required any information on the background to the French Revolution to help her make sense of the actual events. This information need is comparable to the “enlightenment” type defined by Taylor (1991: 230) and is characteristic of the “prefocus exploration” phase within Kuhlthau’s (1988a: 238) information search process model. A similar continuum has been presented by Armbruster and Armstrong (1992: 3) in relation to reading goals. They identify its opposing poles as “very specific” and “very general”;
- *up-to-dateness*. Few youngsters specified that the information they sought should be up-to-date, and those who did make such a stipulation introduced this requirement only when the initial information

that they had retrieved did not match their expectations. Wes (Y4/C-1/II/51), searching for population figures for the USA, was unimpressed on discovering only a 1998 estimate, and a similar dissatisfaction was expressed by Victor² (R-Y2/A-1/FG/11) when he learnt that the information dealing with the programme, "Blue Peter", provided by "Ceefax" did not relate to the latest edition. "I get annoyed when it just talks about last week's and doesn't do this week's," he admitted. In both cases the boys had *assumed* up-to-date information would be provided. Like many variables emerging in the study, the issue of the currency of the material required has been given little attention in most studies of young people's information needs, although the matter has been raised by Callaghan (1983: 61) and Meyers (1999: 44).

By its very nature, some information desired by youngsters had to be up-to-date, e.g. the latest sports results (Victor², R-Y2/A-1/FG/11, Antony, Y13/B-3/II/74) and team news (Bob, Y9/B-3/II/64), consumer information dealing with new computer games (Joe, Y3/C-1/II/50, Piers, Y5/D-2/II/104, Alistair, Y5/D-2/II/105, Cameron, Y7/C-2/II/43, Dennis, Y8/C-2/II/40, Neville⁸, Y7-Y8/D-2/FG/10, Ed⁹, Y9-Y11/B-3/FG/8, Benny⁹, Y9-Y11/B-3/FG/8, Jeff, Y9/B-3/II/77, Maurice, Y11/B-3/II/86), details of presently-erupting volcanoes (Shane⁷, Y7-Y8/D-2/FG/10, Dirk, Y7/D-2/II/94, Kieron, Y7/D-2/II/96, Andrea, Y7/D-2/II/97), current affairs news (Kevin, Y7/D-2/II/95), reports of innovations in IT (Greg, Y9/B-3/II/76, Antony, Y13/B-3/II/74) and stories breaking in Germany (Eileen, Y12/B-3/II/66) and the financial world (Antony, Y13/B-3/II/74);

- *level*. This dimension embraces both conceptual complexity and, if the material is in text form, linguistic readability. Once more, the issue emerged only when retrieved information proved unsatisfactory. Norman (Y8/D-2/II/106), who was interested in alternative medicine, explained how, when his mother had shown him her college notes on the subject, he struggled to grasp the content. He admitted, "It's really submolecular stuff. I can only really understand the basics." Whereas Norman found his mother's material to be too challenging conceptually, Tony (Y2/C-1/II/54) recognised certain literature devoted to a particular topic of interest to be inappropriate in its readability. Keen to learn about Newcastle United's past footballers, Tony realised that his father's volumes on the subject were beyond his reading level and commented ruefully that few books on the topic seemed to be written for young children. Again, the level of information youngsters require has received little attention in existing projects devoted to their information needs, although Minudri (1974: 158), Callaghan (1983: 61-62) and Fourie (1995: 131) note its importance in relation to school-related subject information, and Lyons et al (1997: 19) and Wallace and Kupperman (1997: 6) highlight it within the context of material found on the Web;
- *accuracy*. Only Wendy (Y4/C-1/II/53) stipulated that the information she sought must be accurate. In all other cases accuracy, like up-to-dateness, seemed to be assumed. Wendy's understanding of accuracy was, however, rudimentary. To her, information was either correct or wrong. She showed no understanding of either a middle ground or the concept of bias. Once more, the importance of accuracy as a factor in terms of the information needs of youngsters has scarcely been addressed in past work;
- *form*. Few youngsters specified that the desired information should take a particular form but, where such a stipulation was made, pictures were usually indicated. It would appear that, unless otherwise stated, the informants assumed that the information they were to find via computers and books would be

textual. In some instances youngsters sought information of a certain type in response to demands made by their teachers. Norman (Y8/D-2/II/106) explained how, in answering questions about Kalapalo Indians, “we had to do a page of writing and a page of diagrams for each question”. This led to Norman specifically seeking a map that he could copy in order to “show where Brazil is”. Pupils were also instructed to obtain pictures for work in subjects such as French (Rosemary, Y8/D-2/II/98), DT (Kirsty, Y8/D-2/II/99) and Art (Ed⁹, Y9-Y11/B-3/FG/8). Usually these then served as stimuli for the youngsters’ own creative work. Occasionally informants undertaking topic work decided of their own volition to seek illustrations. Sasha (Y4/A-1/II/117), making a study of the hippopotamus, identified early on that a picture of her chosen animal was a prerequisite for her work.

Where youngsters were responding to their own interests, some again determined for themselves that an illustration was needed. For several, this arose from a belief that pictures were the most appropriate form for the information they desired. Vicky⁴ (Y3-Y4/G-1/FG/2) considered that the best way of learning about “how people see” would be to locate a diagram showing the process, and Rod³ (Y3-Y4/G-1/FG/2), who wanted to know “what UFOs are like”, also believed that a picture would be most useful. Others sought information not for understanding but for a further practical activity. Rick⁷ (Y7-Y8/D-2/FG/10) wanted pictures relating to the television programme, “Pokemon”, in order to make his own “Pokemon” cards, whilst Kylie⁴ (Y3-Y4/C-1/FG/6), a keen artist, sought pictures of animals as stimuli for her own drawing work. The importance of form as a criterion of information need is discussed by Callaghan (1983: 61);

- *amount*. Believed by Callaghan (1983: 55) and Wallace and Kupperman (1997: 6) to be an important factor pertaining to information need, this issue was introduced by two informants with very contrasting attitudes. Each referred to it in relation to an essay question. Marcus (Y13/B-3/II/92) indicated needing “enough to be able to answer the question properly”. His judgement of when he had obtained sufficient information was largely a qualitative assessment that “by going any deeper and getting any more I’m going off the point”. Marcus’s opinion on the amount required to satisfy his need was thus formed during interaction with the material available. Several youngsters in Limberg’s (1999a) study took a similar approach. A contrasting view, in which the amount believed necessary was driven by quantitative requirements, was held by Wayne (Y13/B-3/II/91), who considered that he needed “enough information to give me two thousand words [the stipulated length of his essay]”. Despite their differences, the attitudes of Marcus and Wayne both support Fourie’s (1995: 132) argument that the nature of the task is critical to the amount of information needed;

d) in relation to the user’s situation

- *novelty of information*. Three varieties of subject information were required:
 - ⇒ *new*. Here the youngster had no preliminary knowledge of the topic and any information on it was welcomed;
 - ⇒ *extension*. In situations of this type informants sought more detail about areas that were familiar to them and about which they already had some information;
 - ⇒ *complementary*. Some informants identified aspect gaps in their existing information relating to a particular area and sought to plug these.

Information of the last two types was often required by youngsters who had been given opportunities during lessons to use resources at school, such as textbooks (Ruth, Y6/C-2/II/31, Jonty⁷, Y7-Y8/D-2/FG/10, Kieron, Y7/D-2/II/96, Harrison, Y12/B-3/II/85) or the Internet (Dirk, Y7/D-2/II/94), or had their own class notes (Gus, Y12/B-3/II/65, Duncan, Y12/B-3/II/84). The information that these youngsters had obtained during their work at school was insufficient, however, to meet in full the requirements of their assignment. Indeed, Joy (Y12/B-3/II/67) asserted that in many instances work in class “only covered part of what you need”;

- **prioritisation and motivation.** Several youngsters believed that, generically, needs of some types were more important than others. Gillian⁵ (Y5-Y6/D-2/FG/3) felt needs relating to her own interest to be “less important” than those for school, and Emily (Y10/B-3/II/82) described how, when presented with optional academic work, her motivation to seek information was lower than when the task was compulsory. Eileen (Y12/B-3/II/66) had a similar attitude. Emily reported one particular occasion when she undertook optional work simply because “I had nothing better to do”. Even when work was obligatory, however, the motivation of some youngsters varied from task to task. Corey³ (Y3-Y4/A-1/FG/12), for example, was less inclined to seek information for school when it was not required for written work.

Source-dependent needs also emerged. These developed in relation to subject areas not because the youngster was keenly interested in the topic or was motivated by external pressure, but rather because a source known to provide information on a particular area of passing interest was readily available. Dominic (Y4/A-1/II/116) relished reading his grandmother’s books on the Romans; Norman (Y8/D-2/II/106) enjoyed listening to his grandfather’s true stories of the Second World War which he remembered from his youth; Sandra⁶ (Y5-Y6/C-2/FG/4) was interested in following, via the Internet, her uncle’s singing career in Australia; Kirsty (Y8/D-2/II/99) watched animal programmes on television. In none of these instances was the youngster sufficiently enthusiastic about the subject to investigate it in other ways and would not have sought other sources had the information not been available from the favoured provider. Some information needs relating to the content of television shows emerged in response to cues during or after the programme. Such information was sought via teletext in relation to cookery programmes, specifically “what you need, the full recipe, and how you do it” (Victor², R-Y2/A-1/FG/11) and activities discussed on the children’s magazine programme, “Blue Peter” (Victor², R-Y2/A-1/FG/11). Sometimes the need disappeared when the source ceased to be available. Zoe (Y9/B-3/II/79) had attended a range of after-school clubs to increase her skills in many areas in which she had a passing interest but, when the clubs ceased to take place, Zoe made no attempt to look elsewhere;

e) in relation to information use

- **nature.** Youngsters seeking school-required subject information had usually been asked to produce some form of end product. Consideration of its nature leads to perhaps the most tangible answer that may be given to Choo’s (2000: 247) question, “What does your problem look like?” He asserts that this matter must be addressed if a proper understanding of the information need is to be gained. End products took various forms, including the completion of wordsearches, answers to quick reference and more open-ended questions, essays, reports, portfolios, talks, role-plays and artefacts. Usually, these products were

to be submitted to the teacher by a deadline and formally assessed. An exception was Eileen's (Y12/B-3/II/66) scrapbook of stories relating to Germany. Although assembled on the instructions of her teacher, this served merely to increase her understanding of life in the country she was studying and was not marked.

Whilst most youngsters seeking information for their own interest simply wanted to know more about the subject, others prepared their own information books. During each summer holiday, Cathy (Y6/C-2/II/32) produced a book on a particular animal, and Malcolm⁶ (Y5-Y6/C-2/FG/4) had created work devoted to different countries for his own amusement. Other youngsters sought information for a specific pleasurable activity. In the case of Kylie⁴ (Y3-Y4/C-1/FG/6), this took the form of art work, as she wanted pictures of animals that she would then draw;

- ***contribution of information element.*** The role of information required for a written school assignment fell into one of three categories:

⇒ ***re-presentation.*** Many first and middle schoolers needed information that they could copy or paraphrase in order to answer given questions or write about a particular topic. Project work often involved the re-presentation of information in both textual and pictorial forms. The need for information for this purpose was rare among high schoolers, although a few situations emerged. Eileen's (Y12/B-3/II/66) scrapbook of stories about Germany, for example, involved merely the recording of stories;

⇒ ***use for analysis.*** Many high schoolers required information to answer essay questions dealing with cause and effect relationships or the importance of a particular factor in terms of a certain event;

⇒ ***integration in creative writing.*** In this, the least common of the three categories, youngsters were asked to write, from their own perspective, an imaginary account of an event, the detail of which was expected to have a factual basis. Here youngsters were required to "personalise" the work in the manner described by Gross (2000: 14). Maureen (Y7/C-2/II/35), Linda (Y7/C-2/II/36) and Clint (Y7/C-2/II/38) explained how, in the "Hajj Diaries" which they were writing for RE, they were to imagine undertaking an Islamic pilgrimage to Mecca and needed information in order to provide their account with authenticity. This work is comparable to that of Emily's (Y10/B-3/II/82) role-play on drug-taking. Here the "storyline" was again fictitious but the detail was to have a factual grounding.

9 CHAPTER SUMMARY

9.1 Types of needs

Needs emerged in the following areas:

- advice;
- spontaneous "life situation" information in response to emerging problems and curiosities;
- personal information that might relate to the youngsters themselves or others within their social worlds;
- affective support;
- empathetic understanding of others;
- support for skill development;

- **school-related subject information**, which might be sought either to enable participants to discharge their academic responsibilities or because they wished to pursue of their own volition topics addressed in class;
- **interest-driven information**;
- **consumer information** to inform decisions regarding the possible purchase of products;
- **self-development information** needed to determine courses of action affecting the youngsters' futures;
- **preparatory information** pertaining to forthcoming challenges;
- **reinterpretations and supplementations** of information already known to youngsters;
- **verificational information** to confirm or deny youngsters' existing suspicions.

9.2 Related observations

- Some school assignments demanding information were highly prescriptive, with the topics and foci specified by the teacher. Others were more open.
- If youngsters received the opportunity to select their own topics for an assignment, choices were typically made on the grounds of personal interest and information availability.
- Very young children and teenagers reported few needs for interest-driven information. The former had not yet developed an enthusiasm for learning more about subjects beyond "localised" matters pertaining to them and the latter either enjoyed little spare time in the face of academic pressures or opted to spend their leisure on social activities.
- Often information needs did not emerge in isolation. A certain situation frequently gave rise to a series or to parallel needs.

9.3 Need variables

A range of need variables, in addition to need type and subject, were identified.

- Whilst occasionally a statement of the need was recorded on paper, as in an assignment brief, in most cases such a statement existed merely in the person's head.
- The reason for which the information was needed varied from high to low specificity.
- Some youngsters could define the totality of their need before seeking information, although for others particular elements of need came to light only during this activity.
- Usually the overall topic remained constant throughout the information-seeking process, yet in a few instances the subject changed during the course of it.
- Most needs were one-off but others were ongoing or repeated at different points in time.
- Termination of the need resulted from one of the following: information-seeking action, events external to the youngster or the inquirer's loss of interest in the topic.
- The urgency with which information was needed differed from one case to another.
- Subject information was sometimes required for memorisation but often it was sufficient simply for it to be available in a source that could be consulted on demand.
- The precision of the subject on which information was called for varied.
- In a few cases highly up-to-date subject information was demanded.
- Some youngsters recognised the necessity for information at a particular level of conceptual complexity and linguistic readability.

- Rarely was it explicitly specified that the desired information must be accurate, although it would appear that this was assumed.
- Information was required in a range of forms, including pictorial.
- On occasion, individuals noted that a particular amount of information was wanted.
- Subject information pertained to a topic entirely new to youngsters, extended what they knew or complemented it by filling blanks within their knowledge.
- For some young people needs of a specific type were more important and worthy of greater priority than needs of other types.
- Where a tangible end product was to be produced, this varied in nature from case to case.
- If the product was a written school assignment, the information was used for one of three purposes: for re-presentation, for analysis or as an input into imaginative writing.

CHAPTER SEVENTEEN
YOUNG PEOPLE'S INFORMATION-SEEKING

This chapter covers the results of the project that relate to the actions the study participants took to meet their information needs. Again, the chapter opens with a typology, this time of the sources and means of gaining information that were employed. Emphasis then shifts to how such sources were seen to be exploited. An assessment is offered of the extent of the problem of unmet needs and reasons why these were not satisfied are suggested. Patterns that emerged across a range of sources are also highlighted. A closing summary reiterates the study's main findings with regard to the informants' information-seeking behaviour.

1 THE "WHAT"/"WHERE": SOURCES AND MEANS OF GAINING INFORMATION

The information-seeking actions taken took the form of solitary methods, direct observation, scrutiny of non-information-related products, "doing", use of toys/games, "academic materials", acknowledged information sources and organisations, membership of mail-based, special interest clubs and exploitation of other people:

- a) **solitary methods.** Here informants employed their mental resources unaided and without the benefit of any external stimulus. Two different approaches were taken:
- **recall**, in which youngsters consciously brought to bear predominantly factual information gained in previous situations. In all reported instances the need involved work for school, and usually the recalled material had itself come to the pupil's notice through school activities. Producing work for a History project, Candice (Y6/D-2/II/16) sought to remember "what the teacher had taught us... the work we'd been doing... stories about Tudors that we'd been told... times where we'd looked at books for information and done things on paper that went into our file". Others concentrated on that presented to them in one highly specific situation, such as the viewing of a video recording (Ed⁹, Y9-Y11/B-3/FG/8) or the undertaking of a fieldtrip (Frida, Y9/B-3/II/63). For some the focus of attention was simply their existing general knowledge (Joan, Y4/C-1/II/52, Hilary, Y6/D-2/II/18). Hilary was unique in using only the method of recall when tackling homework. In all other cases an information source was employed in concert with recall (Joan, Y4/C-1/II/52, Christine, Y5/C-2/II/47, Candice, Y6/D-2/II/16, Ed⁹, Y9-Y11/B-3/FG/8, Frida, Y9/B-3/II/63). Little research into young people's information-seeking has examined the role of the recall of material from one's own memory, although its importance is acknowledged by Krikelas (1983: 14, 17) and by Marchionini (1989b: 611). The latter suggests that the approach may be employed prior to the consultation of "external sources";
 - **reflective thinking**, in which informants embarked on studied consideration in order either to make a decision or to learn a skill. Reflective thinking was described in various ways. In the former context, it was expressed as "sleeping on it" (Kenneth, Y3/C-1/II/48), "deciding for myself" (Dominic, Y4/A-1/II/116), "seeing which... [option] I thought" (Ruth, Y6/C-2/II/31) and "working it out for myself" (Joy, Y12/B-3/II/67), whilst in the latter context it involved "thinking hard" (Siobhan⁴, Y3-Y4/C-1/FG/6), "trying to work it out for myself" (Barbara, Y4/G-1/II/22) and "thinking about it for a while" (Nina, Y5/D-2/II/17).

Where reflective thinking was used to make a decision, this usually involved the application of existing knowledge to the situation at hand. Bill (Y7/C-2/II/39) determined what presents he should

buy his brothers at Christmas by identifying the types of toys and CDs they liked. Faced with a situation in which her friends refused to play with her, Francesca (Y2/G-1/II/5) developed a strategy informed by her awareness of their preferences: "I decided to go up to them and say, 'Would you like to play with me 'cos I've thought of a really good game that you'd like?' and they said, 'That's a good idea. We'll let you play now.' The game I chose was 'Swallows' because it's a good game and I knew they'd like to play it." Sometimes new knowledge was exploited. Pauline's (Y6/C-2/II/30) decision as to whether or not to take an additional SATs paper was based on the impression she had gained of a specimen paper recently shown to her.

The criteria guiding the youngsters in particular circumstances were varied, although realism and personal interest were common factors. Joy (Y12/B-3/II/67), determining the activities she should take on after a prolonged period of illness, made her decisions according to "what I thought I could cope with", and Michelle (Y13/B-3/II/89) selected the subject of the course for which she applied to university on the basis of "what I'm most interested in". For other youngsters, reflective thinking involved adjudicating on the respective value of conflicting viewpoints in order to arrive at a decision (Ruth, Y6/C-2/II/31, Mandy, Y11/B-3/II/69). Elsewhere, the process was used to decide which of two pleasurable activities should be pursued (Olivia, Y3/A-1/II/114, Mary, Y3/G-1/II/3, Dominic, Y4/A-1/II/116, Rose⁶, Y5-Y6/D-2/FG/3, Hilary, Y6/D-2/II/18, Louis Y8/D-2/II/103). The course of action chosen frequently derived from either a youngster's logic or an emotional response as to what activity was considered most preferable at the time.

Informants were often unsuccessful when reflective thinking was deployed to learn a skill. Siobhan⁴ (Y3-Y4/C-1/FG/6) and Nina (Y5/D-2/II/17) used the method in attempting to learn how to tackle Mathematics work but both soon admitted failure and sought instruction from an adult;

- b) **direct observation.** Here youngsters obtained information via first-hand experience and use of their senses in relation to real-world processes, phenomena or events. The individual's role was one of passive receptor. This method of information-seeking is congruent with Kolb's (1984: 152-53) "reflective observation" learning mode. Younger and less academically able informants attached great importance to observation which, for some, constituted the most obvious information-seeking action. When asked how he learnt about Newcastle United, a football club of particular interest to him, slow-witted Jim (Y5/D-2/II/100) gave the researcher a quizzical look before replying simply, "I watch them." In other situations in which the information acquired through observation was needed for the youngster's own interest, Edgar (Y2/A-1/II/111) learnt about cats by watching a neighbour's feline in his own garden, and Penelope (Y2/C-1/II/55) gained information about "rivers and waterfalls" after observing aquatic environments. Information from the world at large was also elicited by Karen (Y1/G-1/II/7) in the context of making bread, and Diane (Y4/G-1/II/1) in relation to woods as animal habitats.

Observation was employed successfully to satisfy a wide variety of needs. However, many need types were described by single informants, and in most cases it was factual information on a matter of personal interest that was desired. Exceptions included the affective support sought by Barbara (Y4/G-1/II/22). Anxious about a friend who was ill, she visited him in hospital and was thus able to see for herself his gradual return to health. Direct observation also proved valuable to two middle schoolers seeking consumer information. Zack (Y5/C-2/II/27) "just looked around the shops" to see what he could buy his family for

Christmas, and Bill (Y7/C-2/II/39) pursued a similar strategy "to see what the best offer was". Harrison (Y12/B-3/II/85) employed observation in order to elicit information that subsequently informed his decision-making. Contemplating dropping one school subject in favour of another for study at "A" Level, Harrison was given the opportunity to sit in on a sample lesson in the latter subject before making his decision.

Dervin (1983: 4) assigns particular importance to the role of observation in information-seeking, defining information to be "not a thing that exists independent of and external to human beings but rather [it] is a product of human observing". She further comments that such observations may be one's own, as well as those of other people, although it is the latter which are typically assumed to provide information. Krikelas (1983: 14, 17), too, highlights direct observation as an "internal" source of information;

- c) **scrutiny of non-information-related products.** Some such goods were acquired specifically to satisfy a need; others were already in the family's possession. Undertaking a project on 1970s fashion. Petra¹¹ (Y9-Y11/B-3/FG/8) employed a range of information sources but the most useful insights were gained by looking at garments of the time, or in her own words, "my Mum's original stuff". Products were also important to Christine (Y5/C-2/II/47), although in a more limited context. Asked to compile a list of items from Egypt, she examined labels on a range of goods to ascertain their countries of origin. Her behaviour differs from that of Petra in that she was not concerned with the analysis of the product per se, merely the information that it explicitly provided;
- d) **"doing".** Here information was gained through discharging a particular task without recourse to recognised information sources. Three methods were reported:
- ***repetitive practice***, in which information was obtained by performing a particular skill and developing an awareness of what was necessary to be successful, even without direct instruction. Alison² (R-Y2/G-1/FG/1) gradually enhanced her skills in roller blading "after I'd practised" and, in the same way, Francesca (Y2/G-1/II/5) learnt how to hold a pencil and make marks on paper through repetitive practice;
 - ***exploration***, in which youngsters actively engaged with the world around them, often through "trial and error" actions associated with the use of a particular artefact, to gain information leading to the acquisition of certain skills. The more varied nature of exploration distinguishes this behaviour from repetitive practice, and the process is more interactive than observation. Indeed, information elicitation results directly from the dynamic nature of the process, with the youngster learning from the success of his or her responses to the artefact and vice versa. Karen (Y1/G-1/II/7) learnt how to use word processing software by exploring, and the information took the form of rules. In Karen's own words, "If I do this, then this happens." Such behaviour is indicative of how, in the words of Krikelas (1983: 14), "information can be 'generated' by the individual seeker". The way in which Karen constructed meaning from her experience suggests that exploration is a form of *learning*, as well as information-seeking. Indeed, the essential characteristics of exploration as practised by Karen are analogous to Kolb's (1984: 152-53) construct of "active experimentation" and Bereiter and Scardamalia's (1989: 364-65) "learning through problem solving";
 - ***execution of related tasks***, where information on a particular topic was gained by undertaking pertinent activities. Information elicited in this way was less rule-oriented and direct than in exploration. Two of

the three reported instances of this behaviour involved equipment. Melissa (R/A-1/II/121) learnt about dinosaurs by drawing them with the aid of a stencil, and Barry (Y2/A-1/II/112) developed his understanding of architecture through using "Visual Home" software on his home computer. In the exceptional situation, Hilary (Y6/D-2/II/18) increased her knowledge of lizards after taking the school lizard home and caring for it during weekends and holidays;

- e) **use of toys/games.** Several young children learnt about subjects of interest to them through interaction with toys that related to the topic. Nathan^R (R-Y2/A-1/FG/11) and Anna (R/C-1/II/62) described their "dinosaur toys", Philippa (R/A-1/II/108) her jigsaw which depicted where in the world particular animals could be found, and Penelope (Y2/C-1/II/55) her model of the Millennium Dome. A similar pattern emerged with a much older informant, Kieron (Y7/D-2/II/96), who gained a greater understanding of medieval times via his computer games set in the period, especially "Castle Explorer";
- f) **use of "academic materials".** These may be considered to be a form of records produced during the course of routine educational activities. They fell into two categories:
 - *produced by self* during lessons at school. Where subject information was needed, either for an assignment or for "in the head" learning, these materials often took the form of pupils' notes. Some had been prepared derivatively from material within textbooks (Pauline, Y6/C-2/II/30, Ruth, Y6/C-2/II/31, Shane⁷, Y7-Y8/D-2/FG/10, Dennis, Y8/C-2/II/40) or whilst the teacher was talking, dictating or making notes on the board (Clint, Y7/C-2/II/38, Bradley¹³, Y12-Y13/B-3/FG/9, Liana, Y13/B-3/II/90). Sometimes, however, notes had been compiled from first-hand experience. Jean (Y11/B-3/II/70), involved in a geographical study of "land-use in Whitley Bay", made jottings during fieldwork in which "we collected information off the streets".

Some self-produced materials took list form. For "in the head" purposes, Eileen (Y12/B-3/II/66) maintained "an ongoing file" of German vocabulary that was new to her. Several materials utilised by the youngsters were general amalgamations of work done in a particular subject. Bill (Y7/C-2/II/39) obtained some information for an RE project from his file, which afforded him a record of all the classroom activities in which he had participated. Similarly, when studying for his Year Six SATs, Darren⁸ (Y7-Y8/C-2/FG/5) had revised from all his exercise books in Mathematics, English and Science, the information within which had resulted from many different activities. Lisa⁵ (Y5-Y6/C-2/FG/4), who needed "refreshment" of skills for a forthcoming Mathematics test, used her exercise book which recorded the calculations she had made in class and for homework.

Several high schoolers were reluctant to consult for revision or for the preparation of an assignment notes they had made in class. For some they were illegible (Petra¹¹, Y9-Y11/B-3/FG/8), incomprehensible (Julia¹¹, Y9-Y11/B-3/FG/8), lacking in the detail required (Gareth¹², Y12-Y13/B-3/FG/9) or probably inaccurate (Gareth¹², Y12-Y13/B-3/FG/9, Bradley¹³, Y12-Y13/B-3/FG/9);

- *produced by others.*
 - ⇒ *option booklets and university prospectuses.* School B-3 produced booklets devoted to the courses offered at GCSE (Ed⁹, Y9-Y11/B-3/FG/8, Bob, Y9/B-3/II/64, Greg, Y9/B-3/II/76, Jeff, Y9/B-3/II/77) and "A" Level (Julia¹¹, Y9-Y11/B-3/FG/8). They were intended to inform the pupils' choices of the subjects they would study over the next two academic years. The perceived value of the booklets varied from one youngster to another. Bob was among those most impressed, and he believed that the

issue of which subjects were most useful for future careers was particularly well addressed. Julia, meanwhile, was critical of the "A" Level booklet and doubted its value to her, believing that projections of her likely GCSE grades were more important factors in shaping her decisions than information about the courses. In relation to the GCSE booklet, Ed and Jeff, although less critical of the material, suggested that advice from others, especially their fathers, formed a more significant input into their decisions. At the most senior level, several youngsters consulted the university prospectuses available in their school's Sixth Form Centre when determining the courses in Higher Education for which they should apply (Liana, Y13/B-3/II/90, Wayne, Y13/B-3/II/91, Marcus, Y13/B-3/II/92);

⇒ *past examination papers*. These gave Pauline (Y6/C-2/II/30) an insight into what she should expect in the event of her deciding to undertake an extra SATs paper, and helped inform her decision as to whether or not to sit it. In her own words, it showed her "what sort of sums and stuff" she could anticipate. Darren⁸ (Y7-Y8/C-2/FG/5) made a similar comment;

⇒ *teacher-produced booklets*. Norman (Y8/D-2/II/106) recalled how his Geography teacher had produced a booklet for use by pupils tackling an assignment on Brazil's Kalapalo Indians. Norman consulted this source alongside other materials;

⇒ *information sheets*. Some middle and high school teachers, chiefly in the curriculum areas of History and Geography, provided pupils with information sheets for use during a set assignment. Toby (Y11/B-3/II/87) was offered these to help him produce an essay on the industrialisation of Japan. Eric (Y8/C-2/II/41) employed comparable sheets when doing History homework, and Kay (Y8/C-2/II/44), Louise (Y8/C-2/II/45) and Tanya (Y8/C-2/II/46), in their studies of the English Civil War, likewise exploited sheets consisting of extracts from appropriate books. All youngsters in these situations realised that the information on the sheets was inadequate in itself for the assignment at hand and they needed to look elsewhere. This was done after consultation of the sheets, which formed a first port-of-call. As Louise recognised, "Looking at the sheet was a start";

⇒ *worksheets*. For Pauline (Y6/C-2/II/30), her teacher's Mathematics worksheet gave information that enabled her to develop the skills necessary to complete a series of calculations successfully. She recounted, "The sheet had two examples at the top so I followed the way they had been done when I was doing my own";

⇒ *work of older siblings*. When seeking information for homework, Harvey (Y6/C-2/II/33) frequently consulted the exercise books of his sisters who had attended the same school before him. In contrast, however, neither Ewan (Y6/C-2/II/42) nor Kay (Y8/C-2/II/44) was able to recall any instances in which they had benefited in a similar way. Kay explained, "My brother kept all of his old work for me and I was looking through it a while ago and there was nothing about what I was doing - none of the same projects or anything";

g) **use of acknowledged information sources, both paper- and technology-based:**

- *paper sources*, which included books within and purchased for home collections, newspapers, magazines, posters, brochures, leaflets, catalogues and sheet music:

⇒ *books within and purchased for home collections*. Where books were consulted for information, subject knowledge was usually required, either for the youngster's own interest or for school

purposes. Andrea (Y7/D-2/II/97) was atypical in using non-fiction books just for academic work. She explained that she read them only “if it’s for.. like a project or something where I *need* to find out”. Assignments were usually involved when information required for school was obtained via books, although some “in the head” needs emerged. Francesca (Y2/G-1/II/5), Kenneth (Y3/C-1/II/48) and Wes (Y4/C-1/II/51) all studied books to help them memorise multiplication tables, and various revision guides were used by GCSE (Julia¹¹, Y9-Y11/B-3/FG/8, Petra¹¹, Y9-Y11/B-3/FG/8) and “A” Level (Wayne, Y13/B-3/II/91, Marcus, Y13/B-3/II/92) pupils learning subject matter. Occasionally books facilitated skill development. Barry (Y2/A-1/II/112) and Isaac (Y5/D-2/II/101) used them to increase their making and modelling skills for their own interest, and Greg (Y9/B-3/II/76) consulted a cookery book at home to discover how to make pasta. In an atypical situation, Kirsty (Y8/D-2/II/99) examined a particular book to gain ideas for a project she was to tackle in a forthcoming DT session at school.

Early development of youngsters’ use of books

Some of the youngest children (Philippa, R/A-1/II/108, Ryan, R/A-1/II/120, Steven, R/C-1/II/60) were unaware that books might contain factual material and several pupils in Reception reported reading only “story books”. Even early years youngsters who had real-world interests that lent themselves to information-seeking behaviour owned only works of fiction. Rupert (Y1/C-1/II/59) who was keen on football, possessed just one football book, and this told an imaginary story. He and Anita¹ (R-Y2/A-1/FG/11) were two of several very young children who indicated that all the books they owned provided “made-up stories”. However, it was not only Reception and Year One pupils who expressed an inclination towards fiction when reading for their own purposes. Davina³ (Y3-Y4/C-1/FG/6), Diane (Y4/G-1/II/1), Judy (Y5/D-2/II/13), Alistair (Y5/D-2/II/105), Helena (Y6/D-2/II/20), Andrea (Y7/D-2/II/97) and Lionel (Y8/D-2/II/102) all admitted to a similar tendency and some talked enthusiastically of certain authors or genres that held particular appeal. This pattern emerged despite the fact that Curtis (Y3/A-1/II/115) believed that “story books” were primarily written for young children, who gradually moved to non-fiction as they became older, a trend he noticed in himself.

The youngest informant to report consulting books for information was Anna (R/C-1/II/62), although in her case considerable adult involvement was necessary. Highly interested in dinosaurs, she explained how she learnt more about them when “my Mum shows me them in a book”. She was one of very few Reception-aged children to indicate that one’s knowledge of a topic could be enhanced by books. Among Year One informants, unprompted use of books for information was much more frequent and less dependent on adult aid. It might be no coincidence that some of the youngest children to use books for information purposes at school were also in Year One. Len¹ (R-Y2/C-1/FG/7) and Gaynor (Y1/C-1/II/58) described consulting classroom books during work on dinosaurs. For his own enjoyment, Dean¹ (R-Y2/A-1/FG/11) used books to gain information about animals, and Glenn (Y1/A-1/II/113) and Gavin (Y1/G-1/II/24) examined books to learn about the human body and the solar system respectively. Books also formed a popular source of information

for older first schoolers wishing to learn about the human body (Vicky⁴, Y3-Y4/G-1/FG/2, Barbara, Y4/G-1/II/22).

Types of books employed

- ◇ Subject works. Informants of all ages used dedicated subject texts, although those consulted by the youngest readers were of an elementary nature. Whereas first and middle schoolers often used books from their own collections at home, many older informants obtained those they needed from school. This section considers only those within the home library. Published materials obtained via organisations like schools and public libraries are addressed in section (h) below. Works on animals and nature were popular among youngsters in the first two school phases and some, such as Don (Y2/G-1/II/4), an eager bird watcher, and Kenneth (Y3/C-1/II/48), who was keen on wildlife generally, relied heavily on one particular book. This was true of many of the youngest informants using books, whatever the subject. Gross (1998: 145) has observed a similar reliance on favourite books in her own research. Beyond the first school, those with ongoing interests often employed different books on different occasions. Judy (Y5/D-2/II/13) consulted several dealing with “flowers and animals”, and Francis⁸ (Y7-Y8/D-2/FG/10) used many of his own at home devoted to wildlife.

The specificity of the subject books employed in relation to the topic of the need varied, although rarely did a youngster exploit a book exclusively devoted to the matter under scrutiny. This was normally the case only where an interest was particularly broad. Edgar (Y2/A-1/II/111) was enthusiastic about outer space generally and any information devoted to this topic in his subject books was welcomed. Instances often arose where the subject of the need was more precise, and the books examined were general in their coverage. Piers (Y5/D-2/II/104), looking for information on the Trojan War, read several more broadly concerned with “wars and battles”, and Louis (Y8/D-2/II/103) used a book called “Nature and Knowledge” to find out about Brazil’s Kalapalo Indians for Geography homework. A notable theme within the first two school phases was the prevalence of youngsters using books dealing specifically with history. Examples include Tony (Y2/C-1/II/54), who consulted one on life at the time of the Stuarts to find out about the Great Fire of London, and Candice (Y6/D-2/II/16), who used a book covering a comparable area for a project on the Tudors. Occasionally, youngsters were able to exploit for school purposes subject books they had originally purchased for their own interest. May (Y7/C-2/II/34), for example, used her own books when given the opportunity to examine the subject of dolphins for a Science assignment;

- ◇ Encyclopedias. Volumes of this type were popularly consulted by first and middle schoolers, especially to satisfy school-related needs, but in the high school much greater use was made of electronic than paper encyclopedias. Gratch (1978: 42) and the Children’s Literature Research Centre (1996: 217) have also found young children to use book encyclopedias more than do their senior counterparts. Nevertheless, fourteen- to seventeen-year-olds scrutinised by Marchionini (1989b: 599-601) still exploited encyclopedias extensively, and Sheingold (1987: 81) broadly notes the popularity of the encyclopedia as an information source among youngsters.

First and middle schoolers consulted encyclopedias to meet school-related needs in a range of subjects, especially Science, Geography and History. For Science they were used for both quick reference and more detailed information (Dominic, Y4/A-1/II/116, Frank⁵, Y5-Y6/D-2/FG/3, Ewan, Y6/C-2/II/42). Youngsters across both middle schools employed encyclopedias for History projects (Candice, Y6/D-2/II/16, Clint, Y7/C-2/II/38). Although, in connection with Geography, Joan (Y4/C-1/II/52) examined encyclopedias when undertaking a project devoted to New Zealand, it was in School D-2 that their exploitation in this curriculum area was most marked. They were extensively used by informants tackling homework devoted to volcanoes (Rick⁷, Y7-Y8/D-2/FG/10, Shane⁷, Y7-Y8/D-2/FG/10, Ian, Y7/D-2/II/93, Dirk, Y7/D-2/II/94, Kieron, Y7/D-2/II/96, Andrea, Y7/D-2/II/97) and the Kalapalo Indians of Brazil (Louis, Y8/D-2/II/103). Kieron was unusual in consulting both a children's and an adults' encyclopedia when answering questions on earthquakes. Although not intending to denigrate the volume aimed at children, he nonetheless referred to the adult encyclopedia as "a proper one". It is, perhaps, indicative of the way in which, as youngsters move up the educational system and require more detailed information, their use of general encyclopedias diminishes that, within the context of the work in which he was involved, Shane considered his general encyclopedia a poor substitute for more specialist geographical texts. Similarly, Dirk criticised the lack of detail in the children's encyclopedia he employed for the same task. Nevertheless, one of the most enthusiastic advocates of encyclopedias was a high schooler, Glynis (Y10/B-3/II/81), who, by her own admission, struggled with more in-depth books and relished the less detailed approach taken by encyclopedias.

In addition to employing encyclopedias for specific homework requirements relating to the areas indicated above, some informants often used them as a first port-of-call across a range of areas. John³ (Y3-Y4/G-1/FG/2) reported using his "Children's Illustrated Information Encyclopedia" in response to a diversity of subject needs. Pauline (Y6/C-2/II/30) consulted another encyclopedia for assignments on subjects as contrasting as Tudor fashion and outer space, and Sasha (Y4/A-1/II/117) had searched her brother's encyclopedia for information on many subjects.

Encyclopedias were not used exclusively for school work, although this was mainly the case. Sasha read her own Dorling Kindersley encyclopedia to learn about natural phenomena of interest to her. Tony (Y2/C-1/II/54) looked at his "fact-finder" type to find out about ghosts, and Joan (Y4/C-1/II/52) consulted her encyclopedia during work for a self-initiated project on animals. Joe's (Y3/C-1/II/50) use was less focused, as he often browsed his "Children's Kingfisher Encyclopedia" to find information that surprised and amused him. In his own words, "I just have a look through." One article that had recently aroused his attention was devoted to "how they make toothpaste from seaweed";

- ◊ Dictionaries. Like encyclopedias, dictionaries were generally used by younger participants and usually for work for school. In all reported instances of dictionary use, the book was consulted to learn the meaning of a word, not its spelling. Sometimes the inquirer had been specifically asked, often for English work (Wendy, Y4/C-1/II/53, Jeremy, Y5/C-2/II/28), to investigate the

meanings of given words, which on occasion took the form of assigned spellings, and the youngster considered that the best method was to consult a dictionary. Emily (Y10/B-3/II/82) employed a similar approach when investigating the differences between dreams and reality for Drama, looking up each word in a dictionary. Elsewhere, however, the task of finding the meaning of a particular word was not the principal concern of the work necessitating dictionary use. Rather the book was used to overcome a situational block. Some pupils engaged in subject assignments were faced with words unfamiliar to them. Undertaking work on the Kalapalo Indians, Norman (Y8/D-2/II/106) consulted a dictionary when "I wasn't clear on what 'photosynthesis' meant". This was one of several "new" words for which Norman required a dictionary. Amongst older youngsters, there was some use of specialist dictionaries. Tackling a Biology project on injections and vaccinations, Jean (Y11/B-3/II/70) looked at her family's medical dictionary.

Dictionaries were not universally popular. Wendy (Y4/C-1/II/53) indicated that she was more likely to ask her mother the meaning of a word and only if this failed would she consult such a book. Unsure of the circumstances when dictionaries and encyclopedias respectively should be used, Tim⁵ (Y5-Y6/C-2/FG/4) admitted that, if unable to find information in a dictionary, "I usually look on 'Encarta' 'cos I might have got the wrong thing". The fact that some first schoolers, such as Don (Y2/G-1/II/4), confessed to being unclear as to the differences between encyclopedias and dictionaries was not unexpected but similar uncertainty among middle schoolers was more surprising;

- ◊ Instructional books. Although infrequent, use was reported in all phases, with Barry (Y2/A-1/II/112) and Isaac (Y5/D-2/II/101) going to books to increase their knowledge of making and modelling skills, and Greg (Y9/B-3/II/76) examining a text to learn how to make pasta;
- ◊ Atlases. Two middle schoolers consulted atlases in relation to work on foreign countries, Isaac (Y5/D-2/II/101) during a study of India and Norman (Y8/D-2/II/106) to find a map showing the location of Brazil;
- ◊ Biographies/autobiographies. Only one youngster reported looking at books of this kind. Judy (Y5/D-2/II/13) regularly read those devoted to the lives of young people about whom she was eager to learn more;
- ◊ Revision guides addressing the content covered by particular courses. Among some high schoolers these were used for "in the head" information in preparation for exams and were preferred to their own handwritten notes because of the latter's deficiencies (Julia¹¹, Y9-Y11/B-3/FG/8, Petra¹¹, Y9-Y11/B-3/FG/8);
- ◊ Product-accompanying books. In addition to Christian (Y4/G-1/II/2) consulting a "user guide" to learn more about a computer game he had purchased, one instance emerged in which goods bought for an informant included material that provided information not only about the product itself but about the wider subject. Barry (Y2/A-1/II/112) found out more about motor sport by reading the book that accompanied his Scalextric set;
- ◊ Other named books or series. Some informants were aware that certain books were generally helpful in relation to a broad subject. Gillian⁵ (Y5-Y6/D-2/FG/3) noted how "Chronicle of the

20th Century” was “pretty good for history”. Most recently she had consulted it to find out more about the sinking of the “Titanic” for her own interest. Zoe (Y9/B-3/II/79) found the same book a useful source when undertaking a History project on “the Home Front”. “Chronicle of the 20th Century” was one of the few titles used by different youngsters for interest and school-required information needs when in the latter case the subject of the need had not been chosen by the youngster. Other participants identified book series that especially appealed to them and looked for works within these ranges in order to satisfy their needs. Ed⁹ (Y9-Y11/B-3/FG/8), who relished books with “words and pictures”, commented, “I find the Dorling Kindersley ones are very good.” This series appealed to youngsters of various ages. Sasha (Y4/A-1/II/117), some five years younger than Ed, was also fond of the books and consulted one on volcanoes when wishing to find out about them for herself.

Family-owned books within the home

Many books consulted in the home were owned by other members of the household. Books exploited by first and middle schoolers were frequently the property of an older sibling. June (Y1/C-1/II/57), attempting to learn more about a fossil, consulted a book loaned to her by a sister two years her senior, and Meredith (Y2/C-1/II/56) used books owned by various people, again including an older sister, to find out about life in Britain. In both instances the girls looked at these books for their own interest but volumes owned by siblings were also read when undertaking school work (Sasha, Y4/A-1/II/117, Paula, Y4/A-1/II/118, Ruth, Y6/C-2/II/31, Harvey, Y6/C-2/II/33, Clint, Y7/C-2/II/38).

Some books consulted by middle and high schoolers belonged to their parents. Norman (Y8/D-2/II/106) often read his mother’s when pursuing his interest in alternative medicine. Rosemary (Y8/D-2/II/98) also exploited her mother’s books, here to learn more about the flowers she pressed for a hobby. Kirsty (Y8/D-2/II/99) used a book shown to her by her stepfather to provide her with ideas for a DT project. Some of the parents whose books were used had teaching experience and had amassed substantial subject collections devoted to the areas in which they taught. Frank⁵ (Y5-Y6/D-2/FG/3) frequently consulted books owned by his mother who was an ex-teacher. Darren⁸ (Y7-Y8/C-2/FG/5) often used those of his father, who taught Science, when undertaking homework in this discipline, and Greg (Y9/B-3/II/76), whose father was a History teacher, examined a range of his texts when doing a recent History project on “the Home Front”, as well as his “Mum’s cookery books” when trying to learn how to make pasta for FT homework. The latter provided the only reported instance of a youngster using a book owned by another member of the family for skills information. In another situation inconsistent with the prevailing pattern, Tony (Y2/C-1/II/54) proved to be the sole first schooler to indicate using his father’s books regularly, in this case to learn about Newcastle United Football Club. In addition to books acknowledged by the informant to belong to a named individual, others considered a family resource for general use were employed (Andrea; Y7/D-2/II/97).

The popularity of books within the home, whether owned personally by the inquirer or by other members of the household, is in line with the findings of past studies. Indeed, Callison and

Daniels (1988: 178) have written of the widespread exploitation of items from “home library collections” in the production of school assignments.

Books provided by the wider family and friends

The use of books owned by people well known to the youngster but beyond the household was also reported. Dominic (Y4/A-1/II/116) read a subject book owned by his grandmother when undertaking a project on birds. It was an awareness of the availability of this volume that persuaded him to nominate the topic he chose. Zack (Y5/C-2/II/27) used a friend’s book to complete a Science assignment devoted to teeth. He took this action because he did not have in his own home materials to meet his need. A similar pattern emerged with Alexandra⁶ (Y5-Y6/D-2/FG/3), who, preparing local studies work, had unsuccessfully approached various agencies, including a public library and Tourist Information Centre, before borrowing an appropriate book from a friend.

Purchase of books

The domestic books consulted by most youngsters faced with particular needs were already available to them but some were bought specifically for the purpose. Several informants purchased non-fiction books regularly. Curtis (Y3/A-1/II/115) had bought a range that covered “things I like to learn about”, including topics that had been addressed in the classroom. Kieron (Y7/D-2/II/96) was developing a collection devoted to “knights and castles”, and Christine (Y5/C-2/II/47), to satisfy her own interest, had bought over some years a variety of books on the Egyptians. Other youngsters purchased non-fiction texts more occasionally for their own interests. Harvey (Y6/C-2/II/33) had lately bought one such book devoted to “Dungeons and Dragons” to find out about a particular character. For younger participants, parents and other members of the family played a key role in book acquisition. Nigel (Y5/C-2/II/29), whose mother was Head of History at a local school, explained how he had recently accompanied her “to a library sale and got nearly a hundred books” for his own use. Larry (Y5/C-2/II/26), contributing data in January, spoke of how he had received numerous books on subjects of interest for Christmas. Piers (Y5/D-2/II/104) also regularly acquired many new books, principally because his father, a local bookseller, would often bring his son items from stock that he thought would be of interest. Bridget⁵ (Y5-Y6/D-2/FG/3) recalled buying books on several recent occasions, although they were generally limited to topics in which she was *particularly* interested or, if she were unable to find appropriate information anywhere else, for meeting a pressing school-related need. High schoolers Gareth¹² (Y12-Y13/B-3/FG/9) and Marcus (Y13/B-3/II/92) indicated that, whilst undertaking particular “A” Level assignments, they had purchased specific texts. Although he was principally motivated by the need to fulfil his obligations in producing an assignment at hand, Gareth considered that some could also be useful when revising;

⇒ *newspapers*. Reported use of newspapers was limited to informants in the middle and high school phases. Kevin (Y7/D-2/II/95) looked at his grandmother’s paper and the headlines of those at his local newsagent’s in order to gain a greater awareness of current affairs, which held particular

appeal for him. Louis (Y8/D-2/II/103) regularly received a paper at home and followed stories in the sports pages.

The three oldest informants to report reading newspapers did so for school purposes. Antony (Y13/B-3/II/74) read the financial columns in his family's copy of the "Daily Mail" to develop an understanding of current stories to which he could refer in his "A" Level Business Studies exam. Joy (Y12/B-3/II/67) routinely read a foreign language newspaper to gain an understanding of current concerns in France, as well as to enhance her language skills. Eileen (Y12/B-3/II/66), too, used newspapers to learn about stories abroad, in her case in relation to Germany, although her papers were English;

⇒ *magazines*. All reported instances of the use of magazines for information were again among middle and high schoolers, although two Reception-aged children indicated reading comics, the factual content of which was negligible and both informants admitted that they paid most attention to the pictures (Ryan, R/A-1/II/120, Raymond, R/G-1/II/10). Where magazines were read, these were almost always used to learn more about topics of leisure or consumer interest, such as computer games (Joe, Y3/C-1/II/50, Ed⁹, Y9-Y11/B-3/FG/8, Greg, Y9/B-3/II/76, Jeff, Y9/B-3/II/77), football (Ian, Y7/D-2/II/93, Dirk, Y7/D-2/II/94), Formula One motor sport (Eric, Y8/C-2/II/41), animals (May, Y7/C-2/II/34), guitars (Zack, Y5/C-2/II/27, Duncan, Y12/B-3/II/84), gadgets (Ross, Y10/B-3/II/72) and the making of model planes (Adrian, Y10/B-3/II/73). Whereas all these youngsters reported buying the magazines for themselves, Frida (Y9/B-3/II/63), one of the few girls to report reading a magazine regularly, consulted her family's copy of "TV Choice" to familiarise herself with television schedules, and Eric (Y8/C-2/II/41) often read his brother's "PlayStation" magazine. The magazine read by Adrian met his needs for skills, as well as consumer, information. It provided him with "new reviews, tips and help, like building advice" in relation to model planes. Some magazines also served as meta-information sources and directed attention to particular Web sites (Zack, Y5/C-2/II/27).

Whilst a few informants subscribed to a particular magazine or bought it regularly (Ross, Y10/B-3/II/72, Adrian, Y10/B-3/II/73), many titles were purchased intermittently. Duncan (Y12/B-3/II/84) decided whether or not to buy individual issues of a certain magazine on the basis of their contents. "I only buy it if I think, 'That's worth spending my money on'," he explained. Ed⁹'s (Y9-Y11/B-3/FG/8) behaviour was similar. He tended to purchase a magazine "if it's got a very good review in", and Greg (Y9/B-3/II/76) sought to "match" his particular interests involving computers with the contents of magazines he would discover by browsing in a shop. A less analytical approach was taken by Jeff (Y9/B-3/II/77), who admitted, "I buy magazines if there's free stuff in. That's the main time."

Two youngsters used magazines for school work. Anneka (Y6/D-2/II/19) began subscribing to a "Young Science" magazine whilst undertaking an academic project. Even though she had now completed the task, she continued to buy the magazine. "A" Level pupil Tessa (Y13/B-3/II/75) regularly consulted the school's "History Review" journal as part of her studies. Specifically aimed at "A" Level pupils, it offered details of historical events and also new interpretations, thereby enabling Tessa to remain up-to-date. When preparing an extended piece of writing on the French

Revolution, Tessa found an appropriate article invaluable in providing her with initial understanding. She was then able to make use of more specialist textbooks. Tessa also found herself learning essay writing skills by attending closely to particular items within the "History Review" magazine. She explained, "They take an essay and break it down and show how it could be improved, what's good about it and that helps you quite a bit for your own work." Generally, however, youngsters seemed unaware of the value of periodicals in providing information on the subjects of school assignments.

Several studies have found use of magazines for academic purposes to be more prevalent. Indeed, Gratch (1978: 32, 41) considered a desire to consult them to be one of the main motivations for older inquirers within her project to visit the central library, and three-fifths of the pupils scrutinised by Mancall and Deskins (1984: 11) used magazines when writing school assignments. The research of Pitts (1994: 258) and Hirsh (1999: 1278) suggests that, where use is limited, this is because youngsters lack the knowledge and skills necessary to find relevant material effectively, rather than being ignorant of the value of periodical articles;

- ⇒ *posters*. Wes (Y4/C-1/II/51) explained how a poster pinned on a wall in his bedroom listed multiplication tables, which he was trying to learn for school;
- ⇒ *brochures, leaflets and catalogues*. A range of ephemeral materials was consulted by informants to satisfy needs of a variety of types. Bob (Y9/B-3/II/64), who was tackling a project demanding the planning of a holiday, consulted a travel brochure, and Joan (Y4/C-1/II/52) employed similar materials when producing work on a country of her own choice. Both pupils found them highly useful. In fact, Bob's brochure was the sole source he exploited. He recalled, "That brochure was very good. It had maps and everything in that I needed."

Many leaflets were read by pupils, mainly for specific school assignments, although they provided insufficient material for them to be the only information sources necessary. Clint (Y7/C-2/II/38) looked at those disseminated by a drug awareness organisation when tackling a PSE project on the subject. Leaflets collected by Frida (Y9/B-3/II/63) during a school fieldtrip to Eden Camp were employed when she worked on a History assignment devoted to "the Home Front". Mandy (Y11/B-3/II/69), investigating the dietary requirements of sufferers of coeliac disease, gained information from supermarket leaflets. Jean (Y11/B-3/II/70) was unusual in employing leaflets produced by several different organisations when undertaking a project on local land-use. Not all ephemeral materials used by youngsters for school work were of the brochure and leaflet type, however. Andrea (Y7/D-2/II/97) consulted a retail catalogue to learn more about the characteristics of clocks which she was studying for DT work.

Ephemera was used much less frequently to help satisfy personal interests. In the only case to emerge Penelope (Y2/C-1/II/55), who was fascinated by the Millennium Dome, often examined a brochure that had been bought by her father during a family visit.

For two youngsters, leaflets conveyed medical information relevant to their own situations. Tanya (Y8/C-2/II/46) used material within those given to her by an orthodontist to inform her decision as to whether or not to have a tooth brace fitted, and Joy (Y12/B-3/II/67) developed a

greater understanding of the post-viral fatigue syndrome from which she was suffering by reading leaflets supplied by her doctor;

⇒ *sheet music*. Used by Joy (Y12/B-3/II/67) and Duncan (Y12/B-3/II/84), sheet music not only offered information leading to skill development in terms of instruction on the notes to be played when performing a certain piece but also *created* needs since the youngster might not know how to play, or might not even recognise, a particular note as written. Here parallels can be drawn between these problems and those affecting youngsters faced with unfamiliar words when reading ordinary prose;

- *technology-based sources*, which embraced computers, television/video and radio:

⇒ *computers*. Computers were familiar to informants from Reception to Sixth Form as all had experience of using them at school. For some younger children exposure to computer-based technology in the home, however, was limited to games consoles (Steven, R/C-1/II/60, Maggie, Y1/A-1/II/119, Rupert, Y1/C-1/II/59, Dominic, Y4/A-1/II/116). In several instances informants beyond the early years owned or had access to home computers but made little use of them. One such youngster was Joe (Y3/C-1/II/50), whose behaviour derived from his frustration with the slow speed of his system. Ruth (Y6/C-2/II/31) was dogged by technophobia. "I'll probably just break it," she feared. Although such anxieties have not been a major theme in past research, they have been reported by Eastman (1986: 213). Several youngsters, like Nina (Y5/D-2/II/17), owned computers equipped with neither CD-ROM nor Internet capability, and their information-providing potential was thus limited. A few first schoolers were reliant on other members of the family for access. Gerald (Y1/G-1/II/8) used the system owned by his older brother, and Ian⁴ (Y3-Y4/G-1/FG/2) had exploited his father's lap-top computer to retrieve information dealing with space. Such dependence was less prevalent in higher levels, although some indicated that they neither owned a computer nor had access to one at home (Kenneth, Y3/C-1/II/48, Fiona⁴, Y3-Y4/A-1/FG/12, Colin⁴, Y3-Y4/G-1/FG/2, Larry, Y5/C-2/II/26, Judy, Y5/D-2/II/13, Pauline, Y6/C-2/II/30, Ewan, Y6/C-2/II/42, Candice, Y6/D-2/II/16, Kirsty, Y8/D-2/II/99). Candice believed she was in a minority position. Most of those without home computers relied heavily on books, often either in the home or from libraries. Conversely, Damien⁴ (Y3-Y4/A-1/FG/12) and Will⁴ (Y3-Y4/A-1/FG/12) indicated particular assignments where they had not used their own home computers because other materials were available to them. Wendy (Y4/C-1/II/53) had a contrasting attitude. She disliked detailed subject books and preferred wherever possible to obtain information via her home computer or by asking other people. Greg's (Y9/B-3/II/76) use of computers was more context-sensitive and need-oriented. He, too, favoured the use of the computer in most situations but realised that information relating to particular skills was found more effectively elsewhere.

As in several recent studies, including that of Hayter (1998: 41), the use of computers for information was very evident. Where they were employed in this context, three applications emerged - CD-ROM, the Internet and community information points:

◇ CD-ROM. Gerald (Y1/G-1/II/8) was the youngest informant to employ CD-ROM for information. As with many early years users, he was dependent on an older sibling sharing the system and appropriate discs with him. Exploitation of CD-ROM for information was highly prevalent among first and middle schoolers, although some youngsters owning computers with

CD-ROM capability used them mainly or exclusively for games (Damien⁴, Y3-Y4/A-1/FG/12, Will⁴, Y3-Y4/A-1/FG/12, Jeremy, Y5/C-2/II/28, Nigel, Y5/C-2/II/29, Harvey, Y6/C-2/II/33, Norman, Y8/D-2/II/106, Petra¹¹, Y9-Y11/B-3/FG/8). Norman was one of the few to indicate that, despite having access to CD-ROM, he generally consulted materials from school or books from the public library when tackling homework that involved information-seeking.

CD-ROM and information needs

If the circumstances prompting youngsters to use CD-ROM are examined in terms of the typology of needs presented in the previous chapter, three varieties of need are apparent - support for skill development, school-related subject information and interest-driven information:

- * *support for skill development.* Three situations were reported in which middle schoolers faced with particular problems when attempting homework used educational software in order to acquire skills necessary for its completion. Larry (Y5/C-2/II/26) relied on a package specifically designed for Keystage Two pupils to help him with Mathematics work, and Naomi (Y5/D-2/II/12) exploited “an early learning disc” owned by her brother three years her junior for instruction on subtraction involving thousands. Naomi also employed another of her brother’s discs when attempting to learn, for an English exercise, how adverbs are constructed;
- * *school-related subject information.* CD-ROM encyclopedias were used for subject information by youngsters of all phases when attempting a variety of homework assignments. Some indicated that, across a range of subjects, such encyclopedias were one of the first sources they consulted (Wendy, Y4/C-1/II/53, Diane, Y4/G-1/II/1, Sandra⁶, Y5-Y6/C-2/FG/4, Maureen, Y7/C-2/II/35, Cameron, Y7/C-2/II/43, Louise, Y8/C-2/II/45, Tracy, Y8/D-2/II/107, Ed⁹, Y9-Y11/B-3/FG/8, Toby, Y11/B-3/II/87). Others, however, outlined specific subjects in relation to which they employed CD-ROM. Bob (Y9/B-3/II/64) regularly used “GCSE Help” packages for English, Mathematics and Science. Some believed their use of CD-ROM encyclopedias to be confined to particular situations. Kay (Y8/C-2/II/44) found the resource most valuable “for short things where you don’t need much [information]”, and Gareth¹² (Y12-Y13/B-3/FG/9), one of the oldest informants, explained that he usually used the resource as a standby if the material he required for an essay were not readily available to him elsewhere. Where youngsters indicated going to CD-ROM for specific assignments, the topics were as follows:
 - ♦ English - twentieth century inventions, the title of an essay set for Lesley (Y9/B-3/II/78) by her private tutor;
 - ♦ Science - snakes (Damien⁴, Y3-Y4/A-1/FG/12), hippopotamuses (Sasha, Y4/A-1/II/117), pandas (Paula, Y4/A-1/II/118), dolphins (May, Y7/C-2/II/34), polar bears (Maureen, Y7/C-2/II/35), killer whales (Linda, Y7/C-2/II/36), cats (Gail, Y7/C-2/II/37), human biology (Madeleine, Y5/D-2/II/15, Hilary, Y6/D-2/II/18), the planets of the solar system (Neville⁸, Y7-Y8/D-2/FG/10) and the sensitivity of maggots to light (Duncan, Y12/B-

- 3/II/84). Naomi (Y5/D-2/II/12) indicated that much of her use of CD-ROM for information related to Science;
- ♦ Geography - Australia (Wendy, Y4/C-1/II/53), volcanoes (Shane⁷, Y7-Y8/D-2/FG/10, Andrea, Y7/D-2/II/97) and the Kalapalo Indians of Brazil (Lionel, Y8/D-2/II/102, Louis, Y8/D-2/II/103);
 - ♦ History - the Egyptians (Tim⁵, Y5-Y6/C-2/FG/4), Henry VIII and Napoleon Bonaparte (Sandra⁶, Y5-Y6/C-2/FG/4), the Tudors (Cathy, Y6/C-2/II/32), the English Civil War (Kay, Y8/C-2/II/44, Tanya, Y8/C-2/II/46), "the Home Front" during the Second World War (Greg, Y9/B-3/II/76, Jeff, Y9/B-3/II/77), leaders in the Second World War (Zoe, Y9/B-3/II/79) and the rise of Hitler in Nazi Germany (Harrison, Y12/B-3/II/85). Roman weapons (Curtis, Y3/A-1/II/115) and the Egyptians (Piers, Y5/D-2/II/104) also emerged as school-inspired topics investigated via CD-ROM. Cathy (Y6/C-2/II/32), Anneka (Y6/D-2/II/19) and Bob (Y9/B-3/II/64) all considered that they used CD-ROM more often for information on history than on any other curriculum area;
 - ♦ RE - the Islamic pilgrimage (Clint, Y7/C-2/II/38, Bill, Y7/C-2/II/39). Frank⁵ (Y5-Y6/D-2/FG/3) recalled using CD-ROM in pursuit of a school-inspired need involving Muslims;
 - ♦ Art - for pictures of animals to be used in a badge design (Ed⁹, Y9-Y11/B-3/FG/8);
- * *interest-driven information.* Use of CD-ROM for information for leisure purposes was reported much less frequently than its employment for school work. Where it was exploited a diversity of topics was addressed, including animals (Gerald, Y1/G-1/II/8, Maria³, Y3-Y4/A-1/FG/12, Paula, Y4/A-1/II/118, Joan, Y4/C-1/II/52, Cathy, Y6/C-2/II/32, Hilary, Y6/D-2/II/18), outer space (Edgar, Y2/A-1/II/111), houses and architecture (Barry, Y2/A-1/II/112), "motor bikes and tanks" (Isaac, Y5/D-2/II/101), aircraft (Dirk, Y7/D-2/II/94), "what UFOs are like" (Rod³, Y3-Y4/G-1/FG/2), "life in Britain" (Meredith, Y2/C-1/II/56), other countries (Alice³, Y3-Y4/A-1/FG/12, Tim⁵, Y5-Y6/C-2/FG/4, Malcolm⁶, Y5-Y6/C-2/FG/4), rugby (Jim, Y5/D-2/II/100) and the film, "Star Wars" (Corey³, Y3-Y4/A-1/FG/12). Rarely was CD-ROM used for information on popular culture or sport, which proved common subjects for information needs overall, and the only two reported instances merit special attention. Jim, who had recently become keen on rugby, was eager for any information about the game and, unlike many of his sport-loving peers, was not especially interested in the latest results and team news. The CD-ROM software that he employed was able to provide the information he desired. "Star Wars" was the only film in relation to which an informant sought information on CD-ROM. This might be explained on the basis that the movie generated a massive spin-off industry, which included the production of dedicated CD-ROM encyclopedias, one of which was owned by Corey. Few films have made such an impact. Indeed, "The New Encyclopedia of Science Fiction" (1988: 443) refers to the "unprecedented merchandising campaign" that accompanied "Star Wars".

Where a particular subject was of ongoing interest, the use of a given CD-ROM disc for information often eventually dwindled, perhaps because, over time, the information became familiar and the user knew much of what it provided. Gerald (Y1/G-1/II/8) indicated

how, when seeking information about savage animals, his use of a particular package was greatest immediately after it had been bought for him.

It became apparent during fieldwork that many youngsters exploited CD-ROM for school-required, rather than interest-driven, information. When this observation was put to users of CD-ROM in School C-2, all agreed. The reaction of Zack (Y5/C-2/II/27) was typical: "Yeah," he confirmed immediately. "That's what I do." Clearly, the interests of a large number of informants did not coincide with the subjects on which they believed information was available on the CD-ROM software that they owned.

Few informants below Year Three reported using CD-ROM for information. Where it was employed, the needs were interest-driven. For the most part, even early years youngsters familiar with CD-ROM in operation at home saw little purpose in using it themselves. Don (Y2/G-1/II/4) had grown accustomed to watching his older brother searching "Encarta" but reported never exploiting it himself. Perhaps this reflects the fact that youngsters below Year Three were rarely asked to find information for school. The increase in CD-ROM use in the last two years of first school may be attributed at least in part to greater emphasis on independent work.

Use of particular encyclopedias

Most CD-ROM packages mentioned by name were general encyclopedias. Those indicated were as follows:

- * "Encarta" (Meredith, Y2/C-1/II/56, Alice³, Y3-Y4/A-1/FG/12, Maria³, Y3-Y4/A-1/FG/12, Curtis, Y3/A-1/II/115, Sasha, Y4/A-1/II/117, Joan, Y4/C-1/II/52, Wendy, Y4/C-1/II/53, Tim⁵, Y5-Y6/C-2/FG/4, Zack, Y5/C-2/II/27, Frank⁵, Y5-Y6/D-2/FG/3, Madeleine, Y5/D-2/II/15, Jim, Y5/D-2/II/100, Isaac, Y5/D-2/II/101, Malcolm⁶, Y5-Y6/C-2/FG/4, Rose⁶, Y5-Y6/D-2/FG/3, Anneka, Y6/D-2/II/19, Helena, Y6/D-2/II/20, Charles⁷, Y7-Y8/C-2/FG/5, May, Y7/C-2/II/34, Maureen, Y7/C-2/II/35, Linda, Y7/C-2/II/36, Clint, Y7/C-2/II/38, Bill, Y7/C-2/II/39, Dirk, Y7/D-2/II/94, Kevin, Y7/D-2/II/95, Andrea, Y7/D-2/II/97, Pamela⁸, Y7-Y8/C-2/FG/5, Darren⁸, Y7-Y8/C-2/FG/5, Patrick⁸, Y7-Y8/C-2/FG/5, Kay, Y8/C-2/II/44, Louise, Y8/C-2/II/45, Neville⁸, Y7-Y8/D-2/FG/10, Lionel, Y8/D-2/II/102, Louis, Y8/D-2/II/103, Ed⁹, Y9-Y11/B-3/FG/8, Frida, Y9/B-3/II/63, Bob, Y9/B-3/II/64, Greg, Y9/B-3/II/76, Jeff, Y9/B-3/II/77, Lesley, Y9/B-3/II/78, Zoe, Y9/B-3/II/79, Julia¹¹, Y9-Y11/B-3/FG/8, Mandy, Y11/B-3/II/69, Jean, Y11/B-3/II/70, Gareth¹², Y12-Y13/B-3/FG/9, Duncan, Y12/B-3/II/84, Harrison, Y12/B-3/II/85);
- * "Grolier Multimedia Encyclopedia" (Christine, Y5/C-2/II/47, Linda, Y7/C-2/II/36, Toby, Y11/B-3/II/87);
- * "Encyclopedia Britannica" (Christine, Y5/C-2/II/47, Louis, Y8/D-2/II/103, Bob, Y9/B-3/II/64);
- * "Compton's Interactive Encyclopedia" (Cathy, Y6/C-2/II/32, Linda, Y7/C-2/II/36, Shane⁷, Y7-Y8/D-2/FG/10);
- * "Hutchinson Multimedia Encyclopedia" (Joan, Y4/C-1/II/52, Toby, Y11/B-3/II/87);

- * "Oxford Interactive Encyclopedia" (Christine, Y5/C-2/II/47, Tanya, Y8/C-2/II/46);
- * "World Book Multimedia Encyclopedia" (Anneka, Y6/D-2/II/19, Benny⁹, Y9-Y11/B-3/FG/8);
- * "Oxford Children's Encyclopedia" (Paula, Y4/A-1/II/118);
- * "Eyewitness Children's Encyclopedia" (Christine, Y5/C-2/II/47);
- * "Tad's Encyclopedia" (Sandra⁶, Y5-Y6/C-2/FG/4);
- * "Infopedia" (Mandy, Y11/B-3/II/69).

The high level of use of "Encarta" and the wide age range of those consulting it are striking. Part of its popularity may be ascribed to the fact that it is not a single CD-ROM but an ongoing encyclopedia, with new versions released regularly. Thus not all owners of an "Encarta" package would have been referring to the same edition. Furthermore, with new versions often appearing, a novelty and freshness is maintained and it is possible that some youngsters owned more than one edition. A third reason for "Encarta"'s popularity is that it is frequently included as part of a package when the hardware is purchased and thus it is readily available in the homes of many youngsters. Indeed, for some, like Helena (Y6/D-2/II/20), Maureen (Y7/C-2/II/35) and Louise (Y8/C-2/II/45), "Encarta" was the only CD-ROM encyclopedia they possessed. Despite the fact that "Encarta" was in some cases just one of several CD-ROM encyclopedias owned, it was still frequently the preferred package. Linda (Y7/C-2/II/36) was of the opinion that "Grolier Multimedia Encyclopedia" "doesn't have as much information as 'Encarta' does", and indicated that she used "mainly 'Encarta'" in most circumstances. Even some high schoolers stated that "Encarta" was the only CD-ROM investigated when they were tackling a specific project. This was true, for example, of Greg (Y9/B-3/II/76) and Jeff (Y9/B-3/II/77) when undertaking work on "the Home Front". "Encarta"'s popularity was observed by several local professionals, including School C-2's Literacy Coordinator (LT/C-2/2), who believed that the software was often used to the exclusion of all other sources, and the Senior Librarian (Information) within North Tyneside's Library Service (L/LIB/PI/1) was also well aware of its common exploitation at home and in school. Researchers Hayter (1998: 44) and Dobson (2000: 41), too, have noted widespread use, the former again going so far as to suggest that some teenagers are prone to rely on it almost exclusively for information. Nevertheless, the popularity of "Encarta" among young Whitley Bay informants came as something of a surprise in view of the fact that NCET (1996: 41) found in its own research that pupils as old as eleven and twelve considered that the reading level of its material was too challenging for them. Dobson (2000: 51) discovered even older youngsters, aged between twelve and fourteen, to struggle with "Encarta"'s vocabulary.

Ownership of "Encarta" was by no means universal among CD-ROM users, however. Christine (Y5/C-2/II/47) and Toby (Y11/B-3/II/87) possessed several encyclopedias, none of which was "Encarta", and Paula (Y4/A-1/II/118) was entirely dependent on the "Oxford Children's Encyclopedia". Some clearly did not see "Encarta" as an automatic first choice when seeking information on CD-ROM. Anneka (Y6/D-2/II/19), -who owned both "Encarta" and "World Book Multimedia Encyclopedia", preferred the latter as she considered it "easier to understand", whilst Bob (Y9/B-3/II/64) believed that "Encyclopedia Britannica" and "Encarta"

were “both really good” and expressed no preference. Bob’s comment is atypical in that youngsters generally identified a favourite CD-ROM or, at least, one that they employed most frequently. The importance of habitual patterns in the use of particular CD-ROM software is emphasised by the behaviour of Wendy (Y4/C-1/II/53) who explained that she owned one package that “I’ve never really learnt how to work”. Reflecting on why this might be the case she suggested, “I’ve had it a while but I’ve never really needed to use it.” Even Christine (Y5/C-2/II/47), who admitted that she tended to exploit “whichever’s easiest to get out of the box”, acknowledged her inclination towards “Oxford Interactive Encyclopedia”.

Use of particular subject-specific software

Some informants exploited more dedicated, subject-based software. Packages devoted specifically to science were utilised by Christine (Y5/C-2/II/47), Naomi (Y5/D-2/II/12), Vanessa (Y5/D-2/II/14) and May (Y7/C-2/II/34), and the geography-oriented “Encarta World Atlas” was used by Wendy (Y4/C-1/II/53), Naomi (Y5/D-2/II/12) and Rose⁶, (Y5-Y6/D-2/FG/3). High schoolers Frida (Y9/B-3/II/63) and Bob (Y9/B-3/II/64) owned “GCSE Help packages for English, Maths and Science”, thereby reflecting the importance of the three core subjects within the National Curriculum. Several youngsters employed packages that dealt with even more particular topics. These included:

- * “Eyewitness Encyclopedia of Nature” (Christine, Y5/C-2/II/47, Vanessa, Y5/D-2/II/14, Linda, Y7/C-2/II/36);
- * “Dangerous Creatures” (Gerald, Y1/G-1/II/8, Hilary, Y6/D-2/II/18);
- * “Microsoft Dinosaurs” (Vanessa, Y5/D-2/II/14);
- * “The Human Body” (Madeleine, Y5/D-2/II/15, Hilary, Y6/D-2/II/18);
- * “Encyclopedia of Space and the Universe” (Edgar, Y2/A-1/II/111);
- * “Visual Home” (Barry, Y2/A-1/II/112);
- * “Eyewitness History of the World” (Christine, Y5/C-2/II/47);
- * “Ancient Times: People and Places” (Christine, Y5/C-2/II/47);
- * “The History of the Ancient World” (Piers, Y5/D-2/II/104);
- * “The Best of Entertainment” (Anneka, Y6/D-2/II/19);
- * software devoted to the film, “Star Wars” (Corey³, Y3-Y4/A-1/FG/12).

Most of the packages were used for school work, although some, such as “Dangerous Creatures” and “The History of the Ancient World”, had been purchased to satisfy a personal interest and continued to be used solely for this purpose. Whatever the nature of the need, informants relished the higher degree of specialisation they provided in comparison with general encyclopedias.

CD-ROM “libraries”

Several youngsters, mostly of middle school age, such as Christine (Y5/C-2/II/47), Rose⁶ (Y5-Y6/D-2/FG/3) and Anneka (Y6/D-2/II/19), had accumulated extensive collections of CD-ROM software. Usually these included at least one general encyclopedia, typically “Encarta”, and a

few more specialised packages, often dedicated to topics that had been or were currently being pursued for a prolonged period at school. Christine (Y5/C-2/II/47) was unusual in owning as many as four different CD-ROM general encyclopedias as well as more dedicated software. Some youngsters, like Gail (Y7/C-2/II/37), however, appeared unaware of the wealth of material that was available on CD-ROM. "Most CD-ROMs are games," she adjudged.

"Distanced use" of CD-ROM

A small number of youngsters indicated using CD-ROM beyond their own homes. Broadly, these informants fell into two categories:

- * *those who lacked any computer hardware.* Suzanne (Y6/D-2/II/21) admitted that her only experience of CD-ROM outside school came at the house of her estranged father. Some youngsters used a given package repeatedly. Larry (Y5/C-2/II/26) explained how he often exploited a certain Keystage Two Mathematics disc at his cousin's house, whilst others, like Colin⁴ (Y3-Y4/G-1/FG/2), used their friends' CD-ROM facilities for particular assignments across different subjects, and the software employed varied according to the need;
- * *those seeking to use particular software.* Informants in this position had access to computers with CD-ROM capability at home but lacked discs that would have been useful in particular circumstances and relied on others for such provision. Edgar (Y2/A-1/II/111), who was "very interested in space", was permitted by a friend to use a particular "space disc" at his house.

The combined experiences of Edgar and Colin illustrate the importance of suitably-equipped friends in widening the opportunities of others in relation to CD-ROM, although for Edgar the benefit was gained simply because his friend owned an appropriate disc, whereas Colin was dependent on another for both hardware and software.

Rarely did youngsters indicate using, on their own initiative, computers at school for CD-ROM. One such informant, however, was Toby (Y11/B-3/II/87), who relied on the school for the use of "Encarta", although he himself owned two other CD-ROM general encyclopedias. He considered "Encarta" "very good" but was reluctant to purchase a copy because of its expense and the fact that new versions appear regularly. Ed⁹ (Y9-Y11/B-3/FG/8) made similar use of school computers when tackling homework. He commented that they were "handy if they've got a certain disc that you haven't got" but stated that where sufficient information could be found in his own home the school computers "aren't really worth using". In most circumstances he considered them a distraction: "Often people go on them 'cos they're bored and they're not searching for anything specific."

Attitudes to CD-ROM

Informants in the first school and early years of middle school were overwhelmingly positive in their assessments of CD-ROM and few youngsters of any age criticised its ease of use. CD-ROM was a first port-of-call for many pre-teenagers when attempting homework that required them to seek information, and its use formed their preferred information-seeking method. Madeleine (Y5/D-2/II/15) outlined how, before she owned a home computer, she had usually asked her

mother for help in obtaining information needed for homework. Now, however, she was inclined to exploit her CD-ROM encyclopedia immediately and without such consultation. When young participants made comparisons between CD-ROM and non-electronic sources, the former were almost always favoured. Isaac (Y5/D-2/II/101) adjudged, "Encarta's more better than the library. Much." He praised the ease with which information could be retrieved via keywords and, perhaps surprisingly, considered that the CD-ROM encyclopedia offered more material on subjects of interest to him. A comparable enthusiasm for CD-ROM has been observed by Barlow, Karnes and Marchionini (1987: 72), Perzylo and Oliver (1994: 154), Jacobson and Ignatio (1997: 786-87) and Large, Beheshti and Breuleux (1998: 362).

Nevertheless, some youngsters found the range of subjects addressed by CD-ROM packages too limited. Hilary (Y6/D-2/II/18) regretted the fact that there was apparently no CD-ROM software that dealt with the work of a vet. "You can't really get any programs that tell you about that," she lamented. Many older informants believed CD-ROM to lack the in-depth information they required for school assignments. Lionel (Y8/D-2/II/102) reported how he had retrieved "hardly anything" when attempting to use "Encarta" to find out about the Kalapalo Indians, and Louis (Y8/D-2/II/103) made a similar criticism when using "Encarta" and "Encyclopedia Britannica" CD-ROMs for the same purpose. "The information wasn't good enough," he explained. "It didn't go into enough depth about the thing. It didn't actually specialise in the questions we had." It must be emphasised, however, that Lionel, Louis and most of the other informants making this charge were using general encyclopedias, whose very nature rendered them inadequate for detailed subject knowledge. Nevertheless, substantial variations in success were reported by youngsters using different encyclopedias to satisfy the same need. Andrea (Y7/D-2/II/97), consulting "Encarta" for material on volcanoes, found that "it didn't give me a lot of information", whereas Shane⁷ (Y7-Y8/D-2/FG/10), undertaking the same work, reported finding "loads of information" in "Compton's Interactive Encyclopedia" and printing off "three pages' worth". Still, although a few youngsters in the older half of the sample, such as Tracy (Y8/D-2/II/107), indicated that use of CD-ROM formed their preferred information-seeking method, increasing dissatisfaction with the content of software and an associated decline in use were definite patterns in the senior years of the middle and high schools. Curiously, just as in the middle school use dwindled from high levels in Years Five and Six, in the high school CD-ROM exploitation was considerable in Year Nine but declined thereafter. This may be explained by the fact that youngsters in their first year of high school are experiencing many subjects for the first time and study topics relatively superficially. They thus often require introductory material that CD-ROM encyclopedias are able to provide. Subsequently, they expect much more in-depth information when studying at GCSE and "A" Level. Julia¹¹ (Y9-Y11/B-3/FG/8), soon to complete her GCSE studies, indicated using "Encarta" mainly "to browse around". In terms of information for specific assignments for school, she found its value limited. "It's not very detailed... it's really not got enough," she considered.

Some older pupils were more enthusiastic in their use of CD-ROM but viewed encyclopedias as only one of several tools available to them. Many of those most critical of CD-ROM encyclopedias expected much of the information they required to be available *within one source* and, if this was found not to be the case, they were disappointed. Others, meanwhile, had realised that an essay had to be constructed from information *in a variety of sources* and CD-ROM encyclopedias had a key part to play. When seeking information for an assignment, Mandy (Y11/B-3/II/69) often consulted "Encarta" but knew that other materials must also be used. Jean (Y11/B-3/II/70) took a similar line, arguing that, for her, the role of "Encarta" was limited to providing pictures that could be printed out and included in her work and to offering basic information "as a starting point that you can use to go on from". Duncan (Y12/B-3/II/84) concurred with the latter comment. In relation to a Biology project he recalled, "A lot of my background research came from 'Encarta'." Harrison (Y12/B-3/II/85) was atypical as he was one of the few Sixth Formers genuinely enthusiastic regarding the use of "Encarta". Whereas most of his peers who were interviewed no longer used CD-ROM to any great degree, he indicated, "'Encarta' is just so helpful sometimes. It is brief but it hits on certain points."

Surrogate use of CD-ROM

Ruth (Y6/C-2/II/31) was the only youngster to report obtaining information from CD-ROM without interacting with it herself. She owned a home computer but was reluctant to use it, fearing "I'll probably just break it", and preferred to ask her father for material. "He'll just get it off for me," she explained, and recalled how he usually used one of her CD-ROM encyclopedias "where it goes back in time". The haziness with which Ruth described the package and her father's approach suggested that she was largely ignorant of how the software should be used, and, as long as she was able to ask others to provide the information she required, she had little ambition to overcome her technophobia;

- ◊ Internet. The youngest informant to report interacting with the Internet was Barry (Y2/A-1/II/112), who was allowed to visit only sites approved by his parents. Whilst Barry was the sole youngster in Year Two to indicate using the resource, several informants in Years Three and Four did so. Exploitation of the Internet was much more pronounced in the middle school years and greatest of all in the high school phase.

All first schoolers and many middle schoolers with home Internet access indicated that they used it only under adult supervision and several middle schoolers, including Naomi (Y5/D-2/II/12), admitted that, although their house was equipped with a computer with Internet capability, they themselves were not authorised "to go on it". For Anneka (Y6/D-2/II/19) an adult presence was required. She explained, "I'm not allowed to go on without my Dad," and outlined how he directed her to particular sites he knew were sound. Damien⁴ (Y3-Y4/A-1/FG/12) was permitted to look for information both for school and his own interest but not to play games on the Internet "'cos some of them aren't appropriate, my Dad tells me". In some

situations, use of the Internet was suggested by a parent, who then conducted a search in collaboration with the youngster (Zack, Y5/C-2/II/27, Bridget⁵, Y5-Y6/D-2/FG/3).

Even high schoolers faced restrictions imposed by their parents, although their motivations appear to have been guided at least in part by financial factors rather than solely by a desire to protect their offspring from harmful material. Several teenagers were allowed to exploit the Internet only for information for school assignments. In the past, Harrison (Y12/B-3/II/85) had used the Internet to pursue a range of academic and leisure interests but, after he had incurred a high telephone bill, his father had given him “a severe bollocking”, and insisted thereafter that Harrison use the Internet only for information for assignments. A similar story was provided less graphically by Julia¹¹ (Y9-Y11/B-3/FG/8). Gatekeeping roles were not played just by parents, however. Petra¹¹ (Y9-Y11/B-3/FG/8) described her sibling’s role in allowing physical access to the computer workstation: “I use my brother’s computer and he only lets me use it for homework. It’s in his room.”

In addition to its exploitation for information, the Internet was widely employed for games, chat rooms and e-mail. Some were aware that access to the Internet was available at home but rarely used it for any purposes (Alice³, Y3-Y4/A-1/FG/12, Nancy⁵, Y5-Y6/C-2/FG/4). Paula (Y4/A-1/II/118), one of several participants who did not mention the Internet when recalling a range of information encounters even though her home was equipped with an Internet-connected computer, had developed a wariness of it after a comment made by her teacher. Paula indicated that she did not trust the information available on the Internet “because Mr. Henderson says the Internet can lie sometimes about things”. Whilst her teacher was attempting to convey that the Internet should be used with caution and what was found should not be automatically accepted as accurate, Paula had adopted a somewhat simplistic response. If its contents could not be trusted, under no circumstances would she use the resource.

The Internet and information needs

The information needs addressed by youngsters employing the Internet fell into five of the categories defined in the previous chapter - personal information, support for skill development, school-related subject information, interest-driven information and consumer information:

- * *personal information.* On two occasions the Internet was used to provide information directly relevant to the lives of the informants. Sandra⁶ (Y5-Y6/C-2/FG/4) learnt more about the singing career of her uncle in Australia, and Zack (Y5/C-2/II/27) investigated a model of guitar that he had recently received as a Christmas present;
- * *support for skill development.* Again only two instances within this category were reported. Adrian (Y10/B-3/II/73) used the Internet to improve his skill in building model planes, and Duncan (Y12/B-3/II/84) described how he relied on a particular Web site to provide him with copies of sheet music instructing him on how to play particular pieces on the guitar;
- * *school-related subject information.* Maria³ (Y3-Y4/A-1/FG/12), one of the youngest children to exploit the Internet to retrieve information for school, did so for a range of different subjects, although she did not report any situations in which she used the Internet for

information on matters of personal interest. Such habitual use of the Internet for school purposes was rare in first schoolers but much more common among older informants. Indeed, Dirk (Y7/D-2/II/94), Kay (Y8/C-2/II/44), Julia¹¹ (Y9-Y11/B-3/FG/8), Petra¹¹ (Y9-Y11/B-3/FG/8) and Jean (Y11/B-3/II/70) were among those often using the Internet for a range of homework assignments, and Michelle (Y13/B-3/II/89), studying “A” Level English Language, Business Studies, Physical Education and General Studies, reflected that she employed the Internet in work for all the subjects. The resource also satisfied many of Curtis’s (Y3/A-1/II/115) needs for school-inspired information. As he enjoyed learning more about various topics pursued in the classroom, he frequently obtained further information from the Internet “just so I can tell them [other people] about things” and appear knowledgeable in the eyes of his fellows. Some commonly used the Internet in association with other sources. Nigel (Y5/C-2/II/29) described “normally” going on the Internet and consulting books from home when seeking information for school. Where informants recalled that they had used the Internet for particular work, the topics were as follows:

- ◆ English - roller coasters (Ross, Y10/B-3/II/72) and the legalisation of the use of marijuana (Adrian, Y10/B-3/II/73), both of which were subjects selected by informants for class talks. In terms of English Language specifically, Gareth¹² (Y12-Y13/B-3/FG/9) had used the Internet for a wide range of assignments during the course;
- ◆ Science - snakes (Damien⁴, Y3-Y4/A-1/FG/12, Will⁴, Y3-Y4/A-1/FG/12), tropical fish (Fiona⁴, Y3-Y4/A-1/FG/12), hippopotamuses (Sasha, Y4/A-1/II/117), bones and muscles in the human body (Bridget⁵, Y5-Y6/D-2/FG/3), nebulae (Alistair, Y5/D-2/II/105), the planets of the solar system (Neville⁸, Y7-Y8/D-2/FG/10) and the sensitivity of maggots to light (Duncan, Y12/B-3/II/84). Piers (Y5/D-2/II/104) indicated that much of his use of the Internet for school work related to topics for Science;
- ◆ Geography - the USA (Wes, Y4/C-1/II/51), India (Jim, Y5/D-2/II/100), volcanoes (Kevin, Y7/D-2/II/95, Kieron, Y7/D-2/II/96) and Rothbury (Eric, Y8/C-2/II/41);
- ◆ History - “Roman forts and Hadrian’s Wall” (Maria³, Y3-Y4/A-1/FG/12), the English Civil War (Kay, Y8/C-2/II/44), “the Home Front” during the Second World War (Frida, Y9/B-3/II/63, Greg, Y9/B-3/II/76, Jeff, Y9/B-3/II/77), leaders in the Second World War (Zoe, Y9/B-3/II/79), the rise of Hitler (Harrison, Y12/B-3/II/85) and the French Revolution (Tessa, Y13/B-3/II/75). The French Revolution also emerged as a school-inspired topic that was investigated via the Web (Kevin, Y7/D-2/II/95). Nigel (Y5/C-2/II/29) believed that most of the school-related information that he sought via the Internet related to historical topics;
- ◆ Modern Foreign Languages - current news stories pertaining to countries under study (Eileen, Y12/B-3/II/66, Joy, Y12/B-3/II/67). Eileen drew attention to the importance of the Internet not only in enabling her to remain up-to-date with stories about Germany but also in offering her practice in reading German. Joy had employed the Internet when writing a variety of essays, especially to find information to complement what had been

covered in class. According to Joy, “Without the Internet... I wouldn’t have been able to do so much of what they’re asking”;

- ♦ RE - the Hajj (Clint, Y7/C-2/II/38) and the life of Jesus (Dennis, Y8/C-2/II/40);
- ♦ PSE - the beliefs of major political parties (Ed⁹, Y9-Y11/B-3/FG/8) and “safe sex” (Benny⁹, Y9-Y11/B-3/FG/8);
- ♦ Textiles - fashion in the 1920s (Julia¹¹, Y9-Y11/B-3/FG/8) and 1970s (Petra¹¹, Y9-Y11/B-3/FG/8);
- ♦ FT - the dietary requirements of those with coeliac disease (Mandy, Y11/B-3/II/69).

The youngest users were often either seeking from the outset pictorial material for projects or, during interactions with the Internet, considered illustrations to form the type of information that was most valuable to them (Sasha, Y4/A-1/II/117, Wes, Y4/C-1/II/51). The role of the Internet as a source of illustrations should not be underestimated. Indeed, Gross (1998: 139) suggests that some of the teachers in her study considered that the Internet was best used for this purpose.

Several of the instances that emerged where youngsters were equipped with the Internet at home but did not use it when seeking information for school resulted from the fact that they had already exploited the resource elsewhere. Rosemary (Y8/D-2/II/98), who was to present a talk on UFOs, described how in a Science lesson she had been given the opportunity to use the Internet. Her work away from school then involved seeking complementary information from her local public library and she made no effort to use the Internet at home. Others seemed unaware of the potential of the Internet to provide them with appropriate material. For example, Norman (Y8/D-2/II/106), who was investigating the topic of the Kalapalo Indians, admitted simply not thinking of using the Internet, even though a suitably equipped computer was available for his exploitation at home;

- * *interest-driven information.* Whilst many youngsters were not permitted by their parents to search the Internet for information on their own interests, others used it extensively in this context. Similar employment of the resource for youngsters’ own purposes has been noted by Gross (1998: 143). Harvey (Y6/C-2/II/33), Toby (Y11/B-3/II/87) and Antony (Y13/B-3/II/74) used it primarily in support of their own interests rather than for school requirements. Antony considered that, assuming parents allowed access to the Internet for satisfying both types of need, the relative levels of use among older pupils depended on the nature of the subjects being taken at school. As with CD-ROM, the topics on which information was sought by youngsters for their own enjoyment varied enormously and even individual informants explored a diversity of areas. Barry (Y2/A-1/II/112), for example, investigated motor racing, flight and the design of houses via the Internet. Darren⁸ (Y7-Y8/C-2/FG/5) employed the resource in an ongoing capacity in pursuit of topics mentioned in conversation by his peers at school. In recent weeks these had included street furniture, Druids and words that were new to him. Damien⁴ (Y3-Y4/A-1/FG/12), who also exploited the Internet “to find out about things I’m interested in”, listed a range of areas, including “Pokemon” and “Star Wars”. Use of the Internet to learn more about popular culture topics

was common throughout the three school phases. Like Damien, Will⁴ (Y3-Y4/A-1/FG/12), Nigel (Y5/C-2/II/29) and Rick⁷ (Y7-Y8/D-2/FG/10) searched for information relating to “Pokemon”, although Rick’s interest was restricted to pictures which he could print out and convert into cards. Dobson (2000: 52) has found evidence of similar activity. This behaviour reaffirms the importance of the Internet in providing youngsters with illustrative material. Still in relation to popular culture, Siobhan⁴ (Y3-Y4/C-1/FG/6) used the Internet to find out about Sive, her favourite “pop” group, Eric (Y8/C-2/II/41) rap music, Toby (Y11/B-3/II/87) “bands and groups”, Liana (Y13/B-3/II/90) modern music, Jean (Y11/B-3/II/70) “films and music”, Shane⁷ (Y7-Y8/D-2/FG/10) horror movies, Pamela⁸ (Y7-Y8/C-2/FG/5) “East-Enders”, Tessa (Y13/B-3/II/75) “Star Trek” and Eve⁷ (Y7-Y8/C-2/FG/5) information in support of “Blue Peter” and the television channel, Nickelodeon. After popular culture, use of the Internet for information on sport proved most common. Generally, the required material related to news and results, often in terms of the local Premiership football club. Official club Web sites were frequently regarded as the most important source (Charles⁷, Y7-Y8/C-2/FG/5, Ian, Y7/D-2/II/93, Dirk, Y7/D-2/II/94, Pamela⁸, Y7-Y8/C-2/FG/5, Bob, Y9/B-3/II/64). Here, the Internet formed an invaluable tool for maintaining current awareness in a certain field. Others used the Internet for news relating to a variety of sports (Antony, Y13/B-3/II/74) or minority games, such as basketball (Patrick⁸, Y7-Y8/C-2/FG/5). Further topics investigated via the Internet included aircraft (Douglas, Y7/D-2/II/93, Dirk, Y7/D-2/II/94), alternative medicine (Norman, Y8/D-2/II/106), medieval history (Kieron, Y7/D-2/II/96) “ancient battles” (Harvey, Y6/C-2/II/33), fishing (Zack, Y5/C-2/II/27), the work of particular poets (Toby, Y11/B-3/II/87) and arguments surrounding the legalisation of the use of marijuana (Adrian, Y10/B-3/II/73). Although most youngsters interacted with the Internet regularly to obtain information on their favourite subjects, for a few its use was less frequent. Norman, for example, described his searches of the Internet for information on alternative medicine as only “occasional”. His main sources were the books of his local library;

- * *consumer information.* The Internet proved the most widely consulted source for consumer information. Products in relation to which information was sought via the Internet included “Beanies” (May, Y7/C-2/II/34), computer games (Cameron, Y7/C-2/II/43, Dennis, Y8/C-2/II/40, Eric, Y8/C-2/II/41), kits for model planes (Adrian, Y10/B-3/II/73), books (Toby, Y11/B-3/II/87), music CDs (Melvyn¹³, Y12-Y13/B-3/FG/9) and new gadgetry (Ross, Y10/B-3/II/72). Melvyn believed that his pursuit of consumer information accounted for most of the time he spent with the Internet away from school and found it an ideal method of learning what “pop” albums were available. Again, informants seeking consumer information generally interrogated the Internet frequently in order to learn more about products that they collected over a prolonged period but in Ross’s case its use was relatively rare because he subscribed to a magazine “that tends to cover what I like really”.

"Distanced use" of the Internet

Exploitation of the Internet in environments other than youngsters' homes was more common than that of CD-ROM. Several informants had used it in the houses of friends (Fiona⁴, Y3-Y4/A-1/FG/12, Bill, Y7/C-2/II/39, Louise, Y8/C-2/II/45, Lesley, Y9/B-3/II/78, Melvyn¹³, Y12-Y13/B-3/FG/9), some on a regular basis, others for specific school assignments. This is reminiscent of the results of research reported by Fieguth and Bußmann (1997) who conclude that youngsters "are perfectly willing to use computers at their friends' homes". Whilst Melvyn also exploited the school computers and Louise had experience of "Internet cafés", for Fiona, Bill and Lesley machines in friends' houses offered their only opportunity to interact with the Internet.

Where the Internet was employed in places other than informants' own homes, the most frequent setting was that of the school. Here, three contexts were apparent:

- * *during lessons, for assigned tasks.* Jonty⁷ (Y7-Y8/D-2/FG/10) explained, "We often get to use the Internet in certain lessons." Situations in which youngsters were instructed to use the resource in this way are beyond the scope of the study as the work was highly directed and discharged under close supervision, with the pupil having no real ownership of the information-seeking process;
- * *during lunch times and, among older informants, free periods.* Computers offering Internet access were available to high schoolers during lunch hours and for several informants, such as Emily (Y10/B-3/II/82), this formed their only chance to use the Internet for their own purposes. Nevertheless, Emily seldom exploited the provision as she found the atmosphere within the computer laboratory intimidating. Other girls resented certain restrictions. In particular, Julia¹¹ (Y9-Y11/B-3/FG/8) objected to what she considered the meagre allocation of credits given to pupils and the short periods for which the machines could be used. She elaborated,

"At lunch time you can only go on for half an hour and by the time you get on and get started it's so frustrating 'cos it's really slow anyway. There's always a lot of crowds gathering after about a quarter of an hour with people wanting to turf you off. Then, by the time you've actually found something, what you really want, the bell's gone."

Such problems meant that Julia tended to use the machines only in lessons when she and her classmates were given time to do so and were asked to work on assigned activities. Petra¹¹'s (Y9-Y11/B-3/FG/8) use was similarly limited as she, too, was deterred by the slow system response and processing speeds. This proved a recurrent theme. Eileen (Y12/B-3/II/66) indicated how she faced a dilemma: "I try to go on at school 'cos it's free but the computers are very slow. It can take ten minutes just to search for something. So I've often ended up going on at home as well." Eileen was one of several keen to take advantage of the fact that searching at school did not incur personal expense. Some Sixth Formers, such as Michelle (Y13/B-3/II/89), seized the opportunity afforded to them to exploit the computers during their free periods. She contrasted this with the position lower down the school where they

had to be used “at certain times”, such as during lunch hours or lessons in which Internet-based activities were supervised by the teacher.

A few youngsters with access to the Internet elsewhere indicated that they either seldom used the school computers or did so in a very limited capacity. Scarlett (Y10/B-3/II/80) rarely exploited the Internet either at home or at school and preferred to ask her mother when needing information for academic work. Melvyn¹³ (Y12-Y13/B-3/FG/9), who employed the Internet at his girlfriend’s house, as well as at school, considered his use at the latter to be less purposeful. “Normally I just waste time on it,” he admitted. For a particular assignment, Benny⁹ (Y9-Y11/B-3/FG/8) had initially searched the Web via a school computer but, after being unable to retrieve any information, turned to his system at home. Undertaking work for a PSE assignment on “safe sex”, he realised that retrieval of information on this subject was not permitted on the school computers. A similar discovery was made by Joy (Y12/B-3/II/67) who, when seeking “stories about France”, was supplied with no details about the activities of the far Right political movement. Joy knew that the content provided for her was “obviously censored” and “there’s certain things that they don’t let you on to”. Whereas both Benny and Joy had become aware that information on the Internet was filtered, the news came as some surprise to Julia¹¹ (Y9-Y11/B-3/FG/8) when she learnt of it in Benny’s focus group. Nevertheless, as both Benny and Joy had home access to the Internet, the filtering system did not prevent their seeing “sensitive” or “controversial” material. They simply carried out the same search elsewhere, with more effective results. The lack of discrimination of the filter at school clearly presented unintended barriers to Benny and Joy, both of whom were intent on information for legitimate school purposes. Similar problems have been highlighted in a report in the consumer magazine, “Which?” (Anon, 2000: 36, 38). This revealed that a study by American librarians had found such filters to deny access to sites needed to answer users’ inquiries in thirty-five percent of instances. Several of the filters tested by the magazine itself were seen to block “straightforward safe-sex advice”;

- * *in computer clubs run at school.* Rick⁷’s (Y7-Y8/D-2/FG/10) only regular chance to use the Internet for his own enjoyment came via an after-school club. Shane⁷ (Y7-Y8/D-2/FG/10) and Francis⁸ (Y7-Y8/D-2/FG/10) were similarly limited. The former suffered considerable frustration when, after visiting a Web site in the closing minutes of a computer club session, he had no opportunity to re-examine it until the club’s next meeting.

If the reasons for informants using, of their own volition, computers at school are compared with those considered by Blanshard (2000: 9) to be responsible for youngsters exploiting public access IT in libraries, discrepancies are apparent. Blanshard isolates *seven* factors, whilst, within this study, the reasons for the use of computers in schools were much more limited, revolving mainly around the lack of a computer or particular software at home and the domestic cost of using the Internet.

In Russell⁴’s (Y3-Y4/C-1/FG/6) case a parental workplace formed the sole environment in which he gained access to the Internet. When asked to produce work for school,

he was sometimes allowed by his father to use the resource in his office within the building where he was employed.

Enthusiasm for the Internet

Where positive perceptions of the Internet were expressed, several major benefits were highlighted. Michelle (Y13/B-3/II/89) praised the greater speed with which information could be retrieved as compared with books. Pamela⁸ (Y7-Y8/C-2/FG/5), for whom the Internet formed her first port-of-call when she sought material for school, considered that it offered “more information”, and appreciated the convenience it provided in making information available in one’s own home. Similar arguments were offered by Melvyn¹³ (Y12-Y13/B-3/FG/9) with regard to consumer information. He found online searching in this context convenient and economical, and indicated how more details could be gained about music CDs of interest. He explained, “You just type in the artist’s name and you can find out he’s done all this stuff you’ve never heard of... and you can just click and find out more about them.” Melvyn contrasted this form of searching with his past method: “In a shop you can only find out so much when they put masses of lists in front of you and even if you go to every single shop you can’t find out as much as you can on the Internet.”

The enthusiasm of users like Michelle, Pamela and Melvyn contrasted with the wariness several youngsters knew to exist on the part of adults. Paula (Y4/A-1/II/118) described how her Class Teacher was critical of the factually inaccurate material available on the Web, and many were aware of their parents’ objections to either the cost of Internet use or the ethical soundness of its content. In relation to the latter, Keith (Y10/B-3/II/83) asserted, “What parents really want is a cleaned up Internet,” and Maurice (Y11/B-3/II/86) commented, “Some parents reckon the Internet is really PG stuff.” In the USA, Flanders (1994: 32-33) has detected widespread similar suspicion of the Internet among parents.

Criticism of the Internet and problems with searching

Differences emerged in the attitudes of younger and older informants. First schoolers tended not to criticise the Internet and usually treated issues that might be considered “problems” as simply part and parcel of its use. A comparable pattern has been observed by Eastman and Agostino (1986: 55) among youngsters working with videotex. It may be that young children were also shielded from many of the frustrations of using the Internet by their parents who worked with them. Older Whitley Bay participants, especially high schoolers, were often intolerant. Some, such as Toby (Y11/B-3/II/87), were highly condemnatory. He concluded, “I don’t think there are any large benefits” over traditional ways of finding information. His assessment was largely based on the low “value of the information” available, the time taken to find material of interest, partly as a result of difficulties in finding “good sites” dealing with the desired subject, and the expense incurred.

The problem most frequently reported was that of the Internet not providing the information required. In the words of Mandy (Y11/B-3/II/69), when looking for information on

a school assignment, “it doesn’t give you exactly what you want or need”. This might be considered part of a generic information-seeking problem not exclusively characteristic of the Internet, in which youngsters hoped to find material that provided them with *precisely* what was needed. Mandy suggested that locating information for one’s own interest was easier, an argument with which Jean (Y11/B-3/II/70) concurred. The latter indicated that this was because here, from the outset, one usually knew of particular, appropriate sites that could be visited. Although this illustrates the importance of a knowledge of good sites relating to the desired subject, the possibility must also be considered that, when searching for information for themselves, some youngsters may accept any information relating to a general area in which they are interested, whereas, for school, material is often required to tackle specific questions. Toby (Y11/B-3/II/87), too, believed it difficult to find information for academic assignments, and thought that some searches were easier to carry out than others. He compared the ease with which he had, for his own purposes, located a list of works by a particular poet with finding, for school, information on a more nebulous topic such as the causes of pollution in Japan. Toby’s assertion corroborates the findings of Wallace and Kupperman (1997: 25) but contrasts with the conclusions of Schacter, Chung and Dorr (1998: 847) and Dobson (2000: 60) and the belief of youngsters studied by Fidel et al (1999: 32) that finding highly specific information is often harder than when what is required is more diffuse. Schacter’s team suggests that searching on ill-defined topics is easier as there is a larger number of potential answers. Overall, Toby believed that the nature of the Internet was such that it was more useful when searching for interest-driven content. He elaborated, “It’s not an information resource, really. It’s more of a leisure resource. So for work I feel it’s pretty much overrated,” and concluded that, in general, “It takes a long time to find what you’re looking for and all the time it’s costing you money,” adding that the time taken to locate desired information is prolonged when the processing speed of the hardware is slow. Youngsters taking part in research reported by NCET (1996: 9, 50-51), Fieguth and Bußmann (1997), Kafai and Bates (1997: 108), Fidel et al (1999: 31) and Hirsh (1999: 1270-71) have also been critical of the time required to carry out an Internet search. When looking for information on the policies of the major political parties for work in PSE, Ed⁹ (Y9-Y11/B-3/FG/8) proved to be among the least successful Internet users. He recalled, “The Internet didn’t come up with anything... nothing useful.” Given the fact that information on his topic was surely available, one must question the effectiveness of the search strategy he employed. Problems also emerged when youngsters sought information that they knew might not exist. Pamela⁸ (Y7-Y8/C-2/FG/5) recounted the difficulties she experienced when wanting to know more about top division local hockey clubs, if, in fact, there were any. Again, this issue would have arisen regardless of the source consulted, however, and might be considered a general information-seeking problem. The Manager of the West Area of North Tyneside’s library service (L/LIB/PI/1) indicated that the youngsters’ criticisms of the Internet were not unexpected. Reflecting on his own experience, he commented,

“It’s surprising how often you get people come in... young people... who are after information and you say to them, ‘There may be something on the Internet,’ and they say, ‘Oh we’ve already tried that at home,’ which is quite interesting because it does, I think,

illustrate the fact that there are still some limitations in terms of what the Internet will provide. You get people having tried the Internet coming here for *printed* sources of information, which is the reverse of what is generally perceived as being the trend.”

The variable quality of Web sites proved a major frustration. Indeed, Toby (Y11/B-3/II/87) considered the presence of “so many sites giving so much useless information” to be a major impediment to effective Internet use. Fieguth and Bußmann (1997) and Jacobson and Ignatio (1997: 792) have reached a similar conclusion. The lack of good, general Web sites for academic work was resented by Patrick⁸ (Y7-Y8/C-2/FG/5), who liked the “BBC Bitesize” site but was disappointed with the limited range of subjects addressed. Melvyn¹³ (Y12-Y13/B-3/FG/9) also drew attention to the shortage of useful educational sites, believing that some of the best went no higher than GCSE level. In terms of sites used for specific topic work, Eric (Y8/C-2/II/41) outlined the range he had examined when looking for information on Rothbury for a local studies project. He recalled, “There was one that was really good. It had the history and everything but the others just gave Rothbury on a map they were showing and then they had a little description of it.” Adrian (Y10/B-3/II/73) found that locating good sites for his interest of constructing model planes was also difficult. He commented, “There is the occasional good site but it takes a bit of finding,” and considered that it was particularly hard to find sites on minority subjects.

The large amount of material available on the Internet was distracting to some, unless they were highly motivated. Darren⁸ (Y7-Y8/C-2/FG/5) admitted, “It leads you astray.” Pamela⁸ (Y7-Y8/C-2/FG/5) agreed, conceding, “I often end up playing a game I don’t really want to do anyway.” Whereas Darren and Pamela voluntarily turned to material that deflected them from their intended purposes, others intent on locating appropriate information found the intrusion of unwanted material invasive. Bob (Y9/B-3/II/64), despite using the Internet regularly at home, was highly critical: “I think the Internet is useless. Whatever you type... if you type in to do a search or anything, pornography comes up. That’s all it seems to have and it’s not really very handy.” Research published in “Which?” (Anon, 2000: 36) has also found that “offensive sites... can pop up when you least expect them.” Further distractions were highlighted by Clint (Y7/C-2/II/38): “It’s really bad when you’re trying to read something and then suddenly a holiday advert comes up.” Clint’s reaction is consistent with the observation of Montgomery (1996: 72-73), who notes that research has shown that “Anything... perceived as an interruption of the flow state” - “the highly pleasurable experience of total absorption in a challenging activity” - “whether it’s artwork being downloaded or an ad that is obtrusively splattered on a screen, is going to get a negative reaction”.

The youngsters’ disillusionment with the Internet contrasts somewhat with more enthusiastic assessments of the resource offered by the teenagers within the studies of Watson (1998: 1028, 1034) and Fidel et al (1999: 27).

CD-ROM and the Internet compared

Comparison of youngsters' use of and attitudes to CD-ROM and the Internet respectively may be made in two ways. Firstly, differences in the data collected from informants in relation to each resource were apparent, leading the researcher to make "analyst-constructed" observations. Secondly, the informants' own ideas in terms of both resources are provided as "indigenous" observations. Each area is addressed individually below.

Analyst-constructed observations

- * The youngest users of CD-ROM were younger than the youngest users of the Internet.
- * Criticisms of the Internet's ease of use were common but rarely were similar comments made in relation to CD-ROM.
- * Although youngsters' Internet use in the home was often restricted or directly supervised by parents, no such checks were indicated in the use of CD-ROM.
- * Technical breakdowns affecting CD-ROM (Nigel, Y5/C-2/II/29, Kieron, Y7/D-2/II/96) and the Internet (Maureen, Y7/C-2/II/35, Greg, Y9/B-3/II/76) alike were reported.
- * The Internet was employed to meet needs of more types than CD-ROM.
- * Needs relating to more school curriculum areas were addressed when using the Internet than CD-ROM.
- * Whereas the Internet was heavily employed to satisfy both school-related and interest-driven needs, the former accounted for the vast majority of CD-ROM use.
- * Whilst many youngsters indicated that they had domestic access to home computers with CD-ROM capability but no Internet connection (Corey³, Y3-Y4/A-1/FG/12, Rod³, Y3-Y4/G-1/FG/2, Malcolm⁶, Y5-Y6/C-2/FG/4, Hilary, Y6/D-2/II/18, Linda, Y7/C-2/II/36, Bill, Y7/C-2/II/39, Andrea, Y7/D-2/II/97, Lionel, Y8/D-2/II/102, Frida, Y9/B-3/II/63, Lesley, Y9/B-3/II/78, Emily, Y10/B-3/II/82), only one instance was reported in which an informant experienced the reverse situation (Douglas, Y7/D-2/II/93).
- * Where each was available at home, some youngsters employed both CD-ROM and the Internet when tackling a particular school assignment (Sasha, Y4/A-1/II/117, Clint, Y7/C-2/II/38, Neville⁸, Y7-Y8/D-2/FG/10, Kay, Y8/C-2/II/44, Zoe, Y9/B-3/II/79, Harrison, Y12/B-3/II/85).
- * Instances in which informants used both CD-ROM and the Internet when pursuing information on a particular interest were much less numerous and were restricted to Barry (Y2/A-1/II/112) in relation to the design of houses and Dirk (Y7/D-2/II/94) in relation to aircraft. This illustrates the fact that CD-ROM appears better suited to meeting school-related, than interest-driven, information needs.
- * Where CD-ROM and the Internet were both available at home, relative levels of use varied enormously from one youngster to another, even across youngsters of a similar age and in relation to the satisfaction of needs of a particular type. Sandra⁶ (Y5-Y6/C-2/FG/4), for example, indicated using mainly CD-ROM for information when seeking information for school, whilst Lisa⁵ (Y5-Y6/C-2/FG/4), in the same focus group, relied more on the Internet.

Indigenous observations

Some youngsters drew attention to distinct differences in the characteristics of CD-ROM and the Internet. Kevin (Y7/D-2/II/95) considered, "I like them both. The Internet costs money but it's got better things on." His view that the Internet's content was "better" was not entirely shared by Toby (Y11/B-3/II/87), who was convinced that CD-ROM was far more useful for school work. He suggested, "It has set articles. You can bring up the article, look at it and move on, whereas the Internet is more a hit and miss thing." In some areas of interest-driven information, he considered the Internet was more valuable, however: "CD-ROMs are there to give you hard information, not to give trivial details about what Madonna's doing this month." He also drew attention to the static nature of information on CD-ROM, with information "put on the CD-ROM and then distributed, whereas the Internet changes every second".

Generally, as the age of youngsters increased, use of CD-ROM fell and that of the Internet grew, basically because the school assignments required of older participants dealt with more specialised topics and demanded greater detail in their treatment. The senior middle school years appear to form a turning point. Several young middle schoolers, such as Zack (Y5/C-2/II/27), who indicated using "Encarta" and Internet equally, employed CD-ROM extensively but, in the later years, many youngsters became increasingly reliant on the Internet. Kay (Y8/C-2/II/44), who exploited both CD-ROM and the Internet, found that, as she moved up her middle school, "Encarta" became ever more unsatisfactory. She explained that "the Internet is so much more detailed. There's, like, loads of information on it", and recounted how, for a recent assignment on the English Civil War, most of her information had come from this resource. Among the oldest informants, Liana (Y13/B-3/II/90) recalled, "When I was younger, I used to use 'Encarta' like all the time when I was doing essays in the lower school but now I hardly ever use it. I just go on the Internet and use books." Another Sixth Former, Gareth¹² (Y12-Y13/B-3/FG/9), provided an almost identical picture, recounting, "I used to use it [CD-ROM] all the time when I was at middle school... and now I use it less and less. I just use it occasionally now whenever I can't find what I want on anything else. I heavily rely on the Internet really." Bradley¹³ (Y12-Y13/B-3/FG/9) considered the reason for such a change: "CDs are aimed at a more general audience and for 'A' Level standard with the subjects I'm doing there's just nothing there for you." He added, "I think that CDs are targeted for family buying for home use." Youngsters interviewed by Jacobson and Ignatio (1997: 786) have also drawn attention to the general nature of the information available on CD-ROM, and Dobson (2000: 41) found that the use of "Encarta" for information by twelve- to fourteen-year-olds in Durham was exceeded by that of the Internet. Within the Whitley Bay study, the overall picture of declining use of CD-ROM through childhood did not, however, apply to Michelle (Y13/B-3/II/89). She indicated, "I've never used CD-ROM. I've never needed to 'cos if I wanted to use an encyclopedia I'd just use a book. And now I just go to the Internet 'cos it's quicker."

Nevertheless, some high schoolers, such as Bob (Y9/B-3/II/64), favoured CD-ROM, encyclopedias and revision software, asserting, "They're much better than the Internet." Where such a preference was expressed within the older half of the sample, however, the justification

was usually made on the grounds of process-oriented considerations, especially ease of use, rather than product-based criteria like the amount or variety of content available. Ed⁹ (Y9-Y11/B-3/FG/8) contrasted the speed with which information could be retrieved using CD-ROM as compared with the Internet, considering that “‘Encarta’ is basically designed for homework and gives you information where it’s a lot easier to find stuff”. Whilst he was aware that the Internet could provide more detailed material, he was highly disillusioned with Web searching, which might involve individual scrutiny of many different sites, most of which would prove unhelpful, and ultimately he usually aborted his efforts, opting for “Encarta”. Ed was one of many who resented reading large amounts of text on-screen. A similar reluctance has been detected by Perzylo and Oliver (1994: 151), Külper, Schulz and Will (1997: 208) and Wallace and Kupperman (1997: 13-14, 16). Rather than examine a range of different sites, Ed preferred to find an appropriate article on “Encarta” and print it off for later reading at his convenience. Aesthetic factors were mentioned by other youngsters favouring CD-ROM. Clint (Y7/C-2/II/38) stated that his preference resulted from the fact that no intrusive advertising disrupted his reading of the articles.

Surrogate use of the Internet

Exploitation of the Internet by others on behalf of the informants was more prevalent than that of CD-ROM. Generally such surrogate use resulted from the fact that either the youngsters were not permitted by their parents to use the Internet or the family simply did not have the required facilities at home and other people exploited their access to computers beyond the domestic environment to make a search for the youngster. Ian⁴ (Y3-Y4/G-1/FG/2), in a range of situations, had relied on his mother who “goes to this school where you can surf the net”. Some surrogate use resulted from youngsters’ disillusionment with the Internet access offered at school. Rather than exploit the school machines, Emily (Y10/B-3/II/82) preferred to “ask my Dad because he’s got it on his laptop at work”. Those undertaking the searching were usually parents, although in one case an older sibling provided information from the Internet, even though the youngster was herself permitted to use it at home (Maria³, Y3-Y4/A-1/FG/12). Where computer-based sources were interrogated by the adult on behalf of the inquirer, the youngster was frequently supplied with some form of print out;

- ◊ community information points. In an unsuccessful attempt to see “what’s on television tonight”, Neville⁸ (Y7-Y8/D-2/FG/10) interrogated a GOSIP (General On Street Information Point) terminal in Newcastle. His failure to find the material he sought resulted from the fact that information provided by the terminal was limited to local matters. A similar misunderstanding of the role of particular electronic sources has been noted by Solomon (1993: 253);

⇒ *television and video*. Many early years children used television almost exclusively for entertainment rather than information (Nathan^R, R-Y2/A-1/FG/11, Ryan, R/A-1/II/120, Steven, R/C-1/II/60, Anita¹, R-Y2/A-1/FG/11, Dean¹, R-Y2/A-1/FG/11, Rupert, Y1/C-1/II/59, Victor², R-Y2/A-

1/FG/11) and even one child as old as seven rising eight indicated that he mainly watched cartoons (Corey³, Y3-Y4/A-1/FG/12). Nevertheless, Reception-aged Anna (R/C-1/II/62) frequently watched her family's "Walking With Dinosaurs" video cassettes so as to learn more about the creatures. She was, however, exceptional within the sample.

Some older first schoolers, viewed factual programmes, such as "Blue Peter", that were broadly designed to inform, whilst others tuned into certain programmes to learn more about particular areas of interest. Alice³ (Y3-Y4/A-1/FG/12) watched "Newsround" in order to know more about other countries, Victor² (R-Y2/A-1/FG/11) "Match of the Day" to find out the football results and goal scorers, and Maria³ (Y3-Y4/A-1/FG/12), Will⁴ (Y3-Y4/A-1/FG/12) and Paula (Y4/A-1/II/118) various animal programmes to satisfy their curiosity. The subjects of the needs prompting television use varied in precision and Victor's must be considered among the most specific of all.

The pattern of watching certain programmes for information on topics of interest continued into middle and high school. Some particular programmes were watched by youngsters of different phases. Lionel (Y8/D-2/II/102) and Louis (Y8/D-2/II/103) also watched "Match of the Day", as well as "Football Focus", and Rosemary (Y8/D-2/II/98) viewed both "Newsround" and "Blue Peter". The motive behind Tim⁵'s (Y5-Y6/C-2/FG/4) watching of "Blue Peter" was unusual. He had noticed that the show, a general magazine programme for youngsters, occasionally included features on life in the future and, since this was of particular interest to him, it provided his main reason for watching. The use of television for information was especially popular among middle schoolers. Piers (Y5/D-2/II/104), watched a range of history programmes, and Hilary (Y6/D-2/II/18), Harvey (Y6/C-2/II/33) and Kirsty (Y8/D-2/II/99) again viewed animal/nature shows. Exploitation of specialist documentary channels was common in the middle school years. Lionel (Y8/D-2/II/102) watched a range of programmes devoted to "battles and wars" on "The History Channel", and Louis (Y8/D-2/II/103) viewed a production screened on "The Discovery Channel" to satisfy his interest in "aliens and extraterrestrial life forms". Although some high schoolers also watched television for information, the behaviour was much less frequent, partly perhaps because of the diminishing time available for leisure pursuits in the face of increased levels of school work and the tendency of many to spend more of their spare time socialising with friends. Furthermore, many high schoolers had more information providers available to them, and access to the Internet, in particular, was greater among older informants.

In all the above situations, the programmes were either documentaries or productions in which film of the phenomenon of interest was part of a wider package involving, perhaps, a narrator or on-screen presenter. However, a second type of programme was also viewed - that in which coverage of a particular event, usually of a sporting type, was afforded and the broadcast provided a substitute for first-hand experience. A comparable distinction has been recognised by Joyce and Joyce (1970: 1) in relation to information-seeking more generally. They write how children can obtain information "through their own perceptual apparatus" or information may be presented to them in an edited, structured form. Sean (R/G-1/II/25) and Brian¹ (R-Y2/G-1/FG/1) had both attempted to learn more about rugby by watching actual matches on television. These

instances provided two of the rare cases in which early years children watched television for information. Some older informants, such as Jim (Y5/D-2/II/100), also attached considerable importance to following favourite sports again by viewing coverage of matches. The fact that Sean and Brian found out about rugby by watching television but did not take any other information-seeking action emphasises the importance of television. The boys did not possess the skills necessary to learn about the sport through books, for example, and benefited from the lack of effort demanded by television. In the same way, television helped to satisfy the needs of many who were casually interested in particular areas but insufficiently eager to pursue more active information-seeking.

Gross (1998: 14) draws attention to the notion of “directedness” - the fact that information may be sought either to address a particular need or for more general purposes. The purposes behind viewing television for information varied across this continuum. Although some watched in order to obtain specific information, such as football scores, in general the youngsters welcomed anything that pertained to a general interest. No situations were reported in which programmes were viewed for information on school assignments.

Anneka (Y6/D-2/II/19) was the sole informant to watch television in order to develop her skills. As she and her family considered her to be weak at Mathematics, they had obtained a teaching course that involved the regular mailing to her home of videos that addressed particular areas of Mathematics. Anneka then tested her newly-found knowledge by tackling exercises in an accompanying workbook.

◊ Teletext. Although instances emerged in all three phases when youngsters had consulted Teletext in order to gain information of interest to them, these were much more less frequent than those when broadcasts of programmes had been watched for this purpose. Teletext was mainly employed for news of recent or current events, such as the scores and scorers in football matches (Victor², R-Y2/A-1/FG/11), football news stories/team news (Douglas, Y7/D-2/II/93, Dirk, Y7/D-2/II/94, Bob, Y9/B-3/II/64) and winning numbers in the National Lottery (Sally², R-Y2/A-1/FG/11), and for information in support of television programmes, such as cookery shows (Victor², R-Y2/A-1/FG/11). More ephemeral information, such as television schedules, was also sought (Frida, Y9/B-3/II/63, Bob, Y9/B-3/II/64). Most users had one preferred Teletext service that was their first port-of-call. Victor, for example, explained how he always went to “Teletext on Tyne Tees”, whilst Bob’s first choice for programme schedules was the on-screen “TV Guide” facilities provided by his family’s digital television set;

⇒ *radio*. Two youngsters indicated using the radio specifically for information. Maria³ (Y3-Y4/A-1/FG/12) had listened to programmes on such subjects as the Romans and animals, the former in order to help satisfy needs for school and the latter for herself. Eileen (Y12/B-3/II/66), who was maintaining a scrapbook of stories about Germany for her “A” Level studies, regularly listened to news broadcasts in the hope of adding to her collection;

h) *use of organisations*. Those approached included schools, public libraries and miscellaneous bodies, such as health awareness organisations and embassies, whilst materials from parental workplaces were also used:

- *schools*. As well as being found within homes or purchased specially, books, magazines and newspapers were obtained through or consulted in school. Such materials included books found in the classroom, allocated textbooks, teachers' personal books and the stock of departmental and school libraries:

⇒ *books found in the classroom*. Several informants reported using, in lessons, books made available by the teacher (Joan, Y4/C-1/II/52, Linda, Y7/C-2/II/36, Andrea, Y7/D-2/II/97, Dennis, Y8/C-2/II/40, Norman, Y8/D-2/II/106). Where the situations were heavily directed, they are again beyond the scope of the study. However, instances also emerged in which youngsters employed books within the classroom on their own initiative. Here the circumstances varied considerably from one case to another. When pursuing a school-inspired interest in the human body, Colin⁴ (Y3-Y4/G-1/FG/2) exploited classroom books on the subject, whilst Kirsty (Y8/D-2/II/99) gained ideas for the making of an artefact to be constructed in a forthcoming DT session from "a selection of books in Mr. Anderson's workshop". Books in the classroom were also used for "in the head" needs. In his own time, Larry (Y5/C-2/II/26) consulted a volume from the Science laboratory to help him revise for a future class test. Some youngsters borrowed from the classroom books for use at home for particular assignments. This was especially common among older pupils in School C-2, although a few were reluctant to take advantage of the opportunity. Pamela⁸ (Y7-Y8/C-2/FG/5) considered that often the books were "too heavy to carry" and disliked the bureaucracy of the signing out procedure. Nevertheless, Linda (Y7/C-2/II/36) was undeterred and believed that "most people are quite happy to use them". Eric (Y8/C-2/II/41) agreed. In terms of subjects, the majority of the books taken home related to Arts disciplines, including RE (Linda, Y7/C-2/II/36, Dennis, Y8/C-2/II/40), History (Eric, Y8/C-2/II/41) and Geography (Eric, Y8/C-2/II/41). Those borrowed by Dennis (Y8/C-2/II/40) were usually texts that he had used in class and found to be of benefit;

⇒ *allocated textbooks*. Several middle schoolers indicated that, for some subjects, they were provided with textbooks which they used for the duration of either the academic year or the teaching of a particular topic. Rosemary (Y8/D-2/II/98) recalled that a small amount of information for her PSE project on "children's rights" came from "the normal textbooks that we use". Other pupils, such as Darren⁸ (Y7-Y8/C-2/FG/5), looked at works provided by the teacher when revising for SATs.

Use of books allocated by subject teachers was most common in the high school. This is testimony to the continuing accuracy of the pattern observed by Goodlad (1976: 14) that the older the pupil, the greater the dependence on textbooks. Much work in English Literature involved the answering of questions relating to a set text. In Year Nine and for GCSE, these could usually be tackled by consulting a copy of the work and reflecting on the significance of particular events (Jeff, Y9/B-3/II/77). Textbooks were read by Year Nine pupils for information on Arts subjects, chiefly Geography (Frida, Y9/B-3/II/63), History (Frida, Y9/B-3/II/63) and French (Bob, Y9/B-3/II/64), although Bob also explained that he often used Mathematics textbooks to develop his skills "because they explain everything, as well as just having exercises in". He rarely, however, found himself consulting a textbook in other subjects that involved a practical element. "If we're doing practical work, like in Science, the teacher takes us through it," he observed. Frida concurred, believing, "You don't need a textbook to tell you how to do something." Older participants indicated receiving and using textbooks in a wide range of curriculum subjects, some of which were

highly practical. Jean (Y11/B-3/II/70) had been supplied with "one for History, one for Graphics and one for each of the Sciences", and Mandy (Y11/B-3/II/69) used a teacher-provided textbook for FT. This perhaps reflects the fact that few subjects studied at school were entirely practical. Jean and Mandy indicated that the books devoted to Graphics and FT respectively had been used throughout the year and had stood them in good stead for a range of assignments. Other pupils, especially at "A" Level, employed different books depending on the aspect of the subject currently under scrutiny. Gareth¹² (Y12-Y13/B-3/FG/9) used "three of four different books for answers to different Computer Studies projects during the year". Bradley¹³ (Y12-Y13/B-3/FG/9), who was taking Physics, indicated that his teacher had provided some good general textbooks "that cover the whole two years but there are others we've been given that cover a single area, like relativity". Perhaps the most dedicated approaches were apparent in "A" Level General Studies and English Language. In the former, pupils were set a weekly essay and given a "pack" containing some of the materials they needed, including appropriate texts and, in the latter, youngsters, set an essay on "language change", had been given three different textbooks specially for the topic (Michelle, Y13/B-3/II/89). Some informants were aware that the degree of specialisation offered by the books provided varied from subject to subject. Michelle particularly contrasted the situation in Business Studies, where there were two books "that tell you most of what you need to know" with that in English Language where "we get loads of books 'cos we use so many for all the different theories". Even where highly specialist books were provided, however, rarely did they offer all the information pupils needed for a given assignment. Gus (Y12/B-3/II/65) commented, "We get given a fair few but I really need to use the [school] library as well." Harrison (Y12/B-3/II/85) voiced the same opinion.

As in the middle school, teacher-provided textbooks were employed for exam revision. Gareth¹² (Y12-Y13/B-3/FG/9) expressed his preference for consulting such books rather than relying on his own handwritten notes "because then you know it's totally accurate. You know there's not going to be any mistakes or anything". He also found that his lesson notes were "not detailed enough", although he conceded that their shortcomings were a reflection of his own deficiencies rather than those of his teacher. "Perhaps I haven't put as much work in as I should," he acknowledged. Bradley¹³ (Y12-Y13/B-3/FG/9), too, used textbooks for much of his revision, again because of doubts over the accuracy of his notes;

- ⇒ *teachers' personal books*. Books were often borrowed from readily accessible collections, with pupils simply selecting the items they believed they needed. In a unique situation, however, Emily (Y10/B-3/II/82), undertaking a project for English on witch-hunts, had asked her teacher for a copy of a particular play. The teacher obliged by supplying her with his own. This incident also provides one of the rare instances in which a certain title was requested by name for a school project;
- ⇒ *departmental libraries*. Subject libraries within the high school were commonly used by older pupils. Specific collections exploited were those associated with English Language (Michelle, Y13/B-3/II/89), History (Tessa, Y13/B-3/II/75), Sociology (Tessa, Y13/B-3/II/75), Textiles (Petra¹¹, Y9-Y11/B-3/FG/8), FT (Mandy, Y11/B-3/II/69, Toby, Y11/B-3/II/87) and PE (Michelle, Y13/B-3/II/89). Usually books from the stock were borrowed for a particular assignment, although Tessa

reported using works from the Sociology collection for less focused “further reading” about different sociological perspectives and theories. Toby was especially impressed with the coverage of hygiene and nutrition in particular books from the departmental library that he had used when designing a meal for one person, although, for Tessa, History books devoted to the French Revolution were too detailed to provide a starting point and more general material had to be found first. Some youngsters believed that the value of the departmental libraries varied from one subject to another. Michelle applauded that devoted to English Language because of its provision of “different books on certain topics”, in contrast with the more “generalised” stock of the school library, but found the PE subject library to be less helpful because, although again the books were highly specific in content, they were fewer in number than those in the school library;

⇒ *school libraries*. Where the library was employed for information, the books examined were almost always subject texts. There was no consultation of general encyclopedias, perhaps because many of the informants had access to such resources at home. Within the first school phase even the use of subject books was very limited, however. Although School A-1’s library had received acclaim in a recent OFSTED report, pupil reaction to it was generally negative. Edgar (Y2/A-1/II/111), the youngest child to seek information in the school library for his own interest, was among those who met with little success. Searching for books on Japan, he could find only some devoted to Australia and was unclear as to the reason for his failure. Despite the fact that each form in the school was allocated a period during the week when they could visit the library, Curtis (Y3/A-1/II/115) stated that he was more likely to use the public library when requiring information for his own interest if he believed it to be available in a book, and, even when undertaking a project for school, Paula (Y4/A-1/II/118) obtained none of her material from the school library. In circumstances where youngsters were given free rein to use any part of the room they wished during “library lessons”, Dominic (Y4/A-1/II/116) was one of several to indicate that he would normally opt for fiction, although some, such as Sasha (Y4/A-1/II/117), seized the opportunity to find information for a class project in the school library. The problems encountered by Edgar when seeking information on particular topics emerged elsewhere. In School C-1, Wes (Y4/C-1/II/51), undertaking work on the USA, had initially sought information in the school library but, on finding nothing, was prompted to turn to his local public library. Ian⁴ (Y3-Y4/G-1/FG/2) had been similarly unsuccessful when seeking an answer to the question, “How many stars are there in the galaxy?” His inability to find the answer led to his looking in books in his classroom and at home.

First schoolers were generally uncritical of the library. Most either did not use it or reported their experiences in very matter of fact, unemotional style. Older informants, however, were more outspoken. In School D-2, disappointment was expressed by pupils unable to find material for school assignments and again this prompted visits to the public library (Gillian⁵, Y5-Y6/D-2/FG/3). For some, however, that at school was the only library available to them. Louis (Y8/D-2/II/103) explained how he used the organisation because his local public library, just a mile from his house, was “closed down. I haven’t been able to go to it now ‘cos it’s all boarded up”. Jim (Y5/D-2/II/100) and Isaac (Y5/D-2/II/101) were among the rare youngsters who had positive opinions of the school library, the former describing it as “excellent” and the latter as “good”. Isaac elaborated, “I think

it's good because it's got lots of books on motorbikes and all that, and how to make stuff." Isaac's favourable assessment was thus based on the fact that the library stocked material dealing with subjects of particular interest to him. Curiously, however, neither Jim nor Isaac had used the school library when preparing work for a recent school assignment on India. This behaviour is congruent with that of Piers (Y5/D-2/II/104), who, for his own interest, borrowed a particular book on medicine but did not generally use the library for school work. Anneka (Y6/D-2/II/19), too, had found one volume to be of special merit. This was devoted to horses, her favourite subject. Contrasting behaviour was reported by Alistair (Y5/D-2/II/105), who had gained from the school library information for a "space talk" he was required to deliver in a Science lesson. For some youngsters, the small nature of the school library led to a certain predictability. Dirk (Y7/D-2/II/94) commented that, when looking for material for a class project, he "already knew most of the stuff that was in there". Norman (Y8/D-2/II/106), too, in his final year at the school, had formed particular expectations of the library. A school librarian, he used the stock mainly for academic work as it did not cater for his personal interests, although he considered this a reflection on his own idiosyncrasies and did not directly criticise the library. He explained, "I'm, like, weird. I like to find out about crystal healing and you're not going to find that in the school library." The lack of coverage within the school library of minority interests was also detected by Rose⁶ (Y5-Y6/D-2/FG/3). "It only has things that *most* people want to find out about," she observed. Kirsty (Y8/D-2/II/99) was more openly critical. Recalling ruefully that she could find only one book on ghosts, her chosen topic for a recent school assignment, she elaborated, "They don't have many things in there. Mostly it's just like story books and most of them aren't that interesting." Personal investigation by the researcher of the numerical balance of fiction and non-fiction within the library vindicated Kirsty's assertion. Of the eighteen bookshelves in the room, twelve were devoted to fiction.

Pupils at School C-2 were apathetic towards the school library. Not one informant indicated using the resource for information. Asked what he thought of it, Bill (Y7/C-2/II/39) replied succinctly, "Not much really, I'm afraid," a view that was typical when an opinion was expressed. Three youngsters offered explanations for their lack of its use. Ruth (Y6/C-2/II/39) was deterred by the forbidding presence of the teacher in charge. Cameron (Y7/C-2/II/43) thought that opportunities were limited by the fact that access for pupils in a particular year group was restricted to one lunch time a week, and Tanya (Y8/C-2/II/46) believed that other activities within the school were more attractive. She explained, "You have to come up in your lunch hour and people prefer to do their own thing in lunch hour, like they've got dancing clubs and sports clubs, so if they go to a library it's probably outside school, like a public library." The youngsters' criticisms of their school library's opening hours are mirrored by the findings of Charter (1987: 159) and Burks (1996: 147). The latter discovered that the "biggest impediment" to use of the school library within her study was the restricted time for which it was open.

Tremendous diversity was apparent from one informant to another in both the degrees of use made of School B-3's library and attitudes to it. Whilst the proportion of pupils exploiting the high school library was greater than the proportions of those using the libraries in schools of previous

phases, there remained many non-users, a few of whom expressed outright hostility to the library. Some of the most positive assessments were made by those in their first year of high school. Frida (Y9/B-3/II/63), Greg (Y9/B-3/II/76), Jeff (Y9/B-3/II/77) and Lesley (Y9/B-3/II/78) all consulted sources within it during a History project on “the Home Front”, and Lesley commented that she used the library at the high school much more than that of School C-2, which she had attended. She attributed this to the fact that, although the rooms were roughly the same size in terms of floor space, the middle school library “isn’t really for research”. Mandy (Y11/B-3/II/69), too, indicated that she exploited the library far more frequently than she had that of School C-2. Benny⁹ (Y9-Y11/B-3/FG/8), Julia¹¹ (Y9-Y11/B-3/FG/8), Petra¹¹ (Y9-Y11/B-3/FG/8), Joy (Y12/B-3/II/67), Tessa (Y13/B-3/II/75) and Liana (Y13/B-3/II/90) reported consulting books from the library for homework on subjects as varied as “safe sex”, fashion, particular plays, the French Revolution and language development, and no youngster made any complaint. Indeed, Petra, who used materials from four different sources for her work on “1970s fashion” considered those from the school library to be of the most value. Although Benny found “only a few books” relevant to the topic of “safe sex”, he was more successful using the library than the Internet at school. The latter provided no information because of its filtering mechanism. Gus (Y12/B-3/II/65), too, employed the school library heavily and praised its “good section” devoted to the sciences that he was pursuing at “A” Level. Harrison (Y12/B-3/II/85) considered the library to be “really good” for History, which he, too, was studying for “A” Level. Tessa, another “A” Level pupil, indicated that, in addition to using the library widely for general information to support her studies, especially in English Literature, she occasionally obtained from it specific texts that had been recommended. Only one informant mentioned visiting the school library for materials other than books. Antony (Y13/B-3/II/74), who, by his own admission was an infrequent user, sometimes read recent newspapers in order “to catch up on financial stories I might have missed over the last week or two”. As was typical among users of this school library, his motivation derived from academic work.

One of the criticisms of the high school library, expressed by two of the youngest pupils in the school, was that it did not provide all the information that was required and they had to look elsewhere too (Jeff, Y9/B-3/II/77, Lesley, Y9/B-3/II/78). Perhaps this reflects the fact that the youngsters expected all the materials necessary for their homework to be available in one place. Actually, no pupils working on any high school assignment reported being able to base their work only on materials from the school library. A similar expectation on the part of youngsters that they could find, in the books within the collection, content that exactly matched their requirements has been noted by Moore (1995: 17), Gordon (1996: 29) and Gross (1998: 142). Wallace and Kupperman (1997: 15, 17) identify a comparable tendency among users of the Internet. Graef (2000) considers this a general view, even among adults, within the “new media age”. They rely on “pre-packaged” information from a particular source, he alleges, without building an understanding from multiple materials. Nevertheless, the attitudes of some older Whitley Bay pupils were more flexible. They appreciated that not all the information they needed would be found in the school library and knew that information-seeking involved the exploration of different options. Harrison (Y12/B-3/II/85), unperturbed by the fact that some aspects of Nazi Germany on which he was

writing an essay were poorly addressed in the textbooks provided by his teacher, visited the school library and “took down half a side of notes” from books “on areas that didn’t get covered particularly well”. Some youngsters engaged in specific assignments struggled to locate any appropriate materials, however. Ed⁹ (Y9-Y11/B-3/FG/8) was unable to find in the library any information on the policies of the major political parties, and Duncan (Y12/B-3/II/84) encountered a similar problem when investigating the sensitivity of maggots to light for Biology work. Seeking to explain his lack of success, Duncan mused, “That could’ve been because other people had got there before me and got the relevant books out but a few of us went over there and there wasn’t really anything that I could put in my research. For that particular thing, they didn’t have anything that was useful really.” What is perhaps most disturbing about Duncan’s account is that he remained ignorant as to whether his failure was due to the fact that such items might already be on loan or whether the library simply did not stock what he wanted. The researcher’s suggestion that he could resolve his uncertainty by consulting the library catalogue was met with surprise. Despite using the school library “quite a lot”, Melvyn¹³ (Y12-Y13/B-3/FG/9), like Duncan, had struggled when highly specific material was needed, although he had found that much detailed information, relating especially to Sociology, was concealed within ostensibly general books and was often difficult to find. Michelle (Y13/B-3/II/89) agreed that the books offered by the library were more general than the departmental stock but she believed the relative levels of provision between the department and the library varied from subject to subject. An unusual theory was put forward by Harrison (Y12/B-3/II/85), who argued that the standard of provision within libraries in general and the school library in particular varied markedly from one discipline to another. He considered that problems such as those experienced by Duncan were not unusual as science stock within libraries tended to be limited whereas “History is always a big section in libraries. You might not have noticed that but it really is. That’s why the subjects I study are actually quite easy to research.”

Whilst many voiced some dissatisfaction with the library in terms of stock, only a small group of Year Ten girls expressed a hostility unconnected to the materials within it. Their criticisms were as follows:

- ◊ negative ambience. Scarlett (Y10/B-3/II/80) found the library “really stereotypical... People just sit and work”. This charge was somewhat surprising in view of the fact that, in the same interview, she had praised her local public library for its “nice and quiet” atmosphere. It emerged, however, that Scarlett’s expectations of the two organisations were quite different. She viewed the school library as a venue for meeting friends on a semi-social level, whereas, when she visited the public library, she was more intent on focused information-seeking. The atmosphere within the school library was not to Scarlett’s liking. “It’s not laid back enough,” she insisted. “It’s like if you go to the library you have to work.” Her attitude that the library should be a place for meeting friends is echoed by Amey’s (1986: 12) informants, who considered this to be one of the school library’s main attractions. Gross (1998: 193) has reached similar conclusions;
- ◊ restrictive rules and practices. According to Emily (Y10/B-3/II/82), “They tell you off for talking and things like that, and then they tell you off for moving the chairs too much and it’s like...

well... WHY?" Emily's resentment is typical of the attitude of youngsters in Flint's (1979: 69) work. They, too, wanted "somewhere they wouldn't be bugged by adults... a place where no demands are made on them". Youngsters within Dobson's (2000: 45-46) study also complained of a domineering attitude on the part of library staff;

- ◊ anti-social nature of pupils who used it. Emily (Y10/B-3/II/82) recalled, "I was in there at break time today 'cos I'd just had English in there and I was sitting there - bored - and I thought, 'Right, I'll try and think of five people in this room who aren't annoying,' and I couldn't do it." The nature of other users within libraries has also been found by Hayter (1998: 47-48) and Meyers (1999: 44) to be a particular irritant to some teenagers, although their findings relate to the public library.

Glynis (Y10/B-3/II/81), Emily and Scarlett all visited the library only when required to do so, largely through having classes in the room. As Glynis explained, "I just go if I have to and that's it." Others reported using the library mainly for the access it offered to computers (Clara, Y12/B-3/II/68, Liana, Y13/B-3/II/90, Wayne, Y13/B-3/II/91).

Even in the high school, where reliance on the library for information was greatest, the level of use was much lower than that reported in many previous studies (Mancall and Drott, 1979: 234, Wozny, 1982: 39, Amey, 1985a: 49, 52, McGregor, 1993: 99, Chance, 2000: 20). It must be acknowledged, however, that all but one of these projects are relatively old and pre-date the now widespread employment of CD-ROM and Internet in the home. Nevertheless, some similarities emerge between the findings of Gross (1997: 162) and those of the Whitley Bay study. In both cases most of the "self-generated" needs prompting action in the library were among younger pupils;

- **public libraries.** Levels of use of public libraries varied enormously from one informant to another. Even within a single school phase, youngsters ranged from being non-users to frequent and enthusiastic visitors. Among first schoolers, the former included Joe (Y3/C-1/II/50), Austin (Y3/G-1/II/23) and Dominic (Y4/A-1/II/106), whose lack of library exploitation was in each case the result of parents not being users. Even where a culture of library visiting existed in families, some youngsters remained indifferent, however. Corey³ (Y3-Y4/A-1/FG/12) was a reluctant user, indicating that "I only go when I have to... When my Mum and Dad are wanting to get some books I have to go 'cos there's no-one else at home to look after me". In contrast, for Barry (Y2/A-1/II/112), Alice³ (Y3-Y4/A-1/FG/12), John³ (Y3-Y4/G-1/FG/2), Suzanne (Y6/D-2/II/21) and Kevin (Y7/D-2/II/95), a visit to the public library was a welcome part of their weekly family routines. Indeed, John claimed that his visits with his grandfather were among his favourite activities. Hayter (1998: 38), in her research, has also recognised the prevalence of regular family outings to the public library.

A comparable range of degrees of use was apparent among older informants. Again, some admitted that they never or only rarely used the library (Ruth, Y6/C-2/II/31, Francis⁸, Y7-Y8/D-2/FG/10, Neville⁸, Y7-Y8/D-2/FG/10, Jean, Y11/B-3/II/70, Antony, Y13/B-3/II/74, Michelle, Y13/B-3/II/89, and Liana, Y13/B-3/II/90). Among these people, the reasons for their lack of use differed from those of their younger counterparts. Several did not use public libraries because they obtained information sources from school or had materials/resources at home that they considered satisfied their needs. Zoe's (Y9/B-3/II/79) use of the public library was limited because, for school work requiring

information, she usually exploited either the Internet or "Encarta". Some of those with substantial collections of books at home also indicated that they were unlikely to use the public library for academic assignments (Nigel, Y5/C-2/II/29, Ruth, Y6/C-2/II/31). In contrast, Maureen (Y7/C-2/II/35), whose home had few books on topics studied at school, frequently borrowed from the public library. Others had special channels available to them. When seeking material for academic work, Jean (Y11/B-3/II/70) seldom visited the public library because much of the information she required was offered in books provided for her by her mother, herself a local librarian. The lack of need to use the organisation was heightened in the high school phase by greater access to information resources at school. Michelle (Y13/B-3/II/89) and Liana (Y13/B-3/II/90) found that most of their information for assignments was obtained from the Internet, departmental stock, the school library or textbooks provided by the teacher. When asked if she used the public library at all, Michelle replied simply, "No, don't need to." DuPree (1989: 26), in her own research, found such an explanation to be easily the most frequently cited single reason among her respondents for their non-use of the public library.

Other older youngsters were enthusiastic library users and went frequently, although they were less inclined to visit with parents than were their younger counterparts. Andrea (Y7/D-2/II/97) typically went either by herself or with a close friend. Nevertheless, even teenagers were often dependent on a member of the family to provide transport if they lived some distance from the library. This was particularly true of Jeff (Y9/B-3/II/77), who relied on his father to drive him in the family car. Several studies, such as those of Fasick and England (1977: 12, 26) and Murray (1985: 59), have found the issue of transportation to be most pertinent to younger users. Although older participants were better placed to make their own decisions in terms of using the public library, the continuing effect of a library-going culture within the family is apparent in the contrasting behaviour of two boys in their final year of middle school. Francis⁸ (Y7-Y8/D-2/FG/10) and Norman (Y8/D-2/II/106) attended the same school and both served as pupil librarians within their school library. The former owned a personal computer with only CD-ROM capability and the latter had home access to both the Internet and CD-ROM. Each was an only child living with his mother. Norman, whose mother encouraged him to visit the public library, was a regular user, whilst Francis, whose mother had no such inclination, never went.

Those who owned home computers with either CD-ROM or Internet capability or both generally preferred these resources to the bookstock of the local public library. This was true even of some who claimed to be regular library users. Isaac (Y5/D-2/II/101) argued, "Encarta's more better than the library. Much. It doesn't have that much books on motorbikes and tanks and cars and that." Whereas one might have assumed that youngsters prefer to use materials at home on account of greater convenience, Isaac favoured the resources offered through his home computer because he considered them to provide more information on topics of interest to him. Furthermore, some of those without home computers but who were regular library users also indicated that, if such resources were available to them, they would use them as a first choice, rather than visit the public library (Judy, Y5/D-2/II/13, Kirsty, Y8/D-2/II/99). In the same way, Colin⁴ (Y3-Y4/G-1/FG/2) asserted that he preferred to use his friend's home computer to the local library. Larry (Y5/C-2/II/26) was one of the few who did not regret lacking a home computer.

Types of materials sought in the library

The fact that particular youngsters declared that they were regular library users does not in itself, of course, demonstrate that they used the library for information. Indeed, some borrowed mainly or exclusively fiction (Davina³, Y3-Y4/C-1/FG/6, Pauline, Y6/C-2/II/30) or music CDs (Eileen, Y12/B-3/II/66). Others visited the library for a combination of materials, including fiction and non-fiction literature (Meredith, Y2/C-1/II/56, Kevin, Y7/D-2/II/95, Gus, Y12/B-3/II/65, Joy, Y12/B-3/II/67) or non-fiction books, video cassettes and CDs (Piers, Y5/D-2/II/104). Several, however, used the library for information exclusively (John³, Y3-Y4/G-1/FG/2, Kieron, Y7/D-2/II/96). A few indicated that the type of materials they sought varied depending on circumstances. Pauline (Y6/C-2/II/30) stated that she went to the library "normally for fiction, unless I'm doing a project for school". Similar behaviour inspired by obligations to school was reported by Christine (Y5/C-2/II/47) and Alistair (Y5/D-2/II/105), who usually borrowed both fiction and non-fiction books for their own interest but, if an academic assignment were to be tackled, also sought material in support of their work.

Public libraries and information needs

The public library was exploited when youngsters were attempting to obtain two forms of information - school-related subject information and interest-driven information - each of which was always sought in book form. There was no reported use of magazines or newspapers.

⇒ *School-related subject information.* Some youngsters habitually used the public library for their academic work and mentioned a range of assignments where material from this organisation had been useful (Larry, Y5/C-2/II/26, Zack, Y5/C-2/II/27, Glynis, Y10/B-3/II/81, Toby, Y11/B-3/II/87, Joy, Y12/B-3/II/67). Toby drew particular attention to the value of information he had obtained when designing a meal for one person and when preparing an essay on pollution in Japan, whilst Joy had consulted library books extensively in "reading around" her English set texts. Whereas teenagers who were regular library users typically sought information on a variety of topics simultaneously, younger patrons exploited the library less intensively, often in relation to single topics that formed their class's current "theme". The only first schoolers to use the library for school-required information were older children, in Years Three and Four.

Much exploitation of the public library for school work involved Arts subjects, although some use was also made in connection with the Sciences. A similar pattern has emerged in the studies of Klitzke (1963: 218), Roberts (1969: 130), Gratch (1978: 35) and Burks (1996: 148). Beyond the work of Toby and Joy, the specific topics upon which informants sought information from the public library were as follows. Unless otherwise stated, all needs were of the school-required type:

- ◇ English - witchcraft/witch-hunts, which was selected by Emily (Y10/B-3/II/82) as the subject of a talk she was to deliver;
- ◇ Science - hippopotamuses (Sasha, Y4/A-1/II/117), pandas (Paula, Y4/A-1/II/118), cats (Gail, Y7/C-2/II/37), outer space (Pauline, Y6/C-2/II/30), UFOs (Rosemary, Y8/D-2/II/98), the Moon, (Kirsty, Y8/D-2/II/99), the process of dissolving (Ewan, Y6/C-2/II/42) and the sensitivity of maggots to light (Duncan, Y12/B-3/II/84);

- ◊ Geography - Scotland (Siobhan⁴, Y3-Y4/C-1/FG/6), the USA (Wes, Y4/C-1/II/51), New Zealand (Joan, Y4/C-1/II/52), Seahouses (Alexandra⁶, Y5-Y6/D-2/FG/3), Rothbury (Dennis, Y8/C-2/II/40), volcanoes (Andrea, Y7/D-2/II/97) and the Kalapalo Indians of Brazil (Lionel, Y8/D-2/II/102);
- ◊ History - the Romans (Alice³, Y3-Y4/A-1/FG/12, Maria³, Y3-Y4/A-1/FG/12), Crystal Palace (Lynne, Y3/C-1/II/49), the Victorians (Damien⁴, Y3-Y4/A-1/FG/12) the ancient Egyptians (Judy, Y5/D-2/II/13) and the English Civil War (Louise, Y8/C-2/II/45). The French Revolution also emerged as a school-inspired topic that was pursued through use of the public library (Kevin, Y7/D-2/II/95);
- ◊ RE - the Hajj (Maureen, Y7/C-2/II/35, Linda, Y7/C-2/II/36, Clint, Y7/C-2/II/38, Bill, Y7/C-2/II/39);
- ◊ PSE - ghosts and poltergeists (Kirsty, Y8/D-2/II/99) and children's rights (Rosemary, Y8/D-2/II/98), which were tackled by pupils given the opportunity to investigate topics of interest to them.

Even informants who used the public library heavily were, for the most part, aware of the need to use a range of resources and rarely were books from the organisation employed exclusively. According to the Senior Librarian (L/LIB/PI/1), the latter pattern may, in the teenage years, be the result not only of a "publishing gap" in material for youngsters approximately thirteen to fifteen, but also their tendency to fall between the junior stock offered by the Children and Young People's Library Service and the adult material provided by the main library service.

⇒ *Interest-driven information.* Where material of this kind was wanted, the topics generally held ongoing appeal for the youngster. Some informants sought material on a variety of subjects of interest to them. Curtis (Y3/A-1/II/115) and Piers (Y5/D-2/II/104) had used the public library to provide them with information on a range of matters, and Barry (Y2/A-1/II/112) had looked for material on areas as diverse as "flight" and "architecture... and houses". Other topics pursued in the library by informants included dinosaurs (John³, Y3-Y4/G-1/FG/2), outer space (Piers, Y5/D-2/II/104), "sea topics"/"the sea" (Curtis, Y3/A-1/II/115, Diane, Y4/G-1/II/1), aircraft (Dirk, Y7/D-2/II/94), the Millennium Dome (Penelope, Y2/C-1/II/55), alternative medicine (Norman, Y8/D-2/II/106), volcanoes (Sasha, Y4/A-1/II/117), the Egyptians (Christine, Y5/C-2/II/47), castles and Red Indians (Kieron, Y7/D-2/II/96) and "how they make movies" (Alistair, Y5/D-2/II/105). The lack of demand for material on topics involving popular culture is noticeable and has also been observed by the Senior Librarian (L/LIB/PI/1).

Jeremy's (Y5/C-2/II/28) behaviour differed from that of many in that, when entering the library, he was often not seeking information on a certain topic but was inclined to browse, find a particular non-fiction book which happened to be of interest and borrow it. Usually, no end product was constructed from the information obtained by those seeking material for their own interest, although Cathy (Y6/C-2/II/32) used books from the public library when undertaking her own project on animals, Kylie⁴ (Y3-Y4/C-1/FG/6), a budding artist, sought "nature books" which included pictures of animals that she could draw for herself, and Kirsty (Y8/D-2/II/99) wanted "picture books" that would provide her with ideas for "things I can make". For young children,

encouragement to use the public library to satisfy a particular need based on personal interest sometimes came from other members of the family (Penelope, Y2/C-1/II/55).

The fairly common exploitation of the public library by first and middle schoolers for interest-driven information contrasts with the fact that, in the high school phase, its use for this purpose was very rare. This may be attributed to the lower priority of teenagers' interests in the face of other pressures and attractions, and, again, greater access to other information sources. It is rather more difficult to ascertain the overall balance between youngsters' use of the library for school-related information and their employment of the organisation in their quests to support their interests. Nevertheless, the Senior Librarian (L/LIB/PI/1) expressed her belief that, at least in terms of their inquiries, "the bulk of them... are for things to support their studies". This complements the views of Chelton (1983: 31), Higgins (1994: 384) and South African librarians Howard, van Niekerk and Musson (in Ahrends, 1983: 18, 19), who believe the public library to be used more for school-related than leisure information. Similarly, actual research described by Castagna (1963: 2422), Petty and Reid (1963: 212), McCrossan (1970: 87), Benford (1971: 2044), Gratch (1978: 31), Norton and Goodgion (1980), Herman (1983: 77), Harrington (1985: 73), Hill and Pain (1988: 30), DuPree (1989: 28), Fourie and Kruger (1994: 98) and Dobson (2000: 37) has found that much of the information sought by youngsters in the public library is required for school assignments.

Use of named public libraries

Where youngsters indicated using a named public library, seven in particular were mentioned:

- ⇒ *Whitley Bay Library* (Alice³, Y3-Y4/A-1/FG/12, Maria³, Y3-Y4/A-1/FG/12, Lynne, Y3/C-1/II/49, Paula, Y4/A-1/II/118, Kylie⁴, Y3-Y4/C-1/FG/6, Wes, Y4/C-1/II/51, Joan, Y4/C-1/II/52, Diane, Y4/G-1/II/1, Barbara, Y4/G-1/II/22, Larry, Y5/C-2/II/26, Naomi, Y5/D-2/II/12, Judy, Y5/D-2/II/13, Nina, Y5/D-2/II/17, Cathy, Y6/C-2/II/32, Alexandra⁶, Y5-Y6/D-2/FG/3, Rose⁶, Y5-Y6/D-2/FG/3, Candice, Y6/D-2/II/16, Hilary, Y6/D-2/II/18, Anneka, Y6/D-2/II/19, Suzanne, Y6/D-2/II/21, Clint, Y7/C-2/II/38, Bill, Y7/C-2/II/39, Douglas, Y7/D-2/II/93, Dirk, Y7/D-2/II/94, Kieron, Y7/D-2/II/96, Dennis, Y8/C-2/II/40, Louise, Y8/C-2/II/45, Lionel, Y8/D-2/II/102, Norman, Y8/D-2/II/106, Greg, Y9/B-3/II/76, Emily, Y10/B-3/II/82, Toby, Y11/B-3/II/87);
- ⇒ *Monkseaton Library* (Maria³, Y3-Y4/A-1/FG/12, Curtis, Y3/A-1/II/115, Damien⁴, Y3-Y4/A-1/FG/12, Fiona⁴, Y3-Y4/A-1/FG/12, Will⁴, Y3-Y4/A-1/FG/12, Sasha, Y4/A-1/II/117, Joan, Y4/C-1/II/52, Madeleine, Y5/D-2/II/15, Helena, Y6/D-2/II/20);
- ⇒ *North Tyneside Central Library*, at North Shields (Barry, Y2/A-1/II/112, Maria³, Y3-Y4/A-1/FG/12, Piers, Y5/D-2/II/104, Alistair, Y5/D-2/II/105, Candice, Y6/D-2/II/16, Suzanne, Y6/D-2/II/21, Dennis, Y8/C-2/II/40, Scarlett, Y10/B-3/II/80, Emily, Y10/B-3/II/82, Mandy, Y11/B-3/II/69, Toby, Y11/B-3/II/87);
- ⇒ *Shiremoor Library* (Jim, Y5/D-2/II/100, Isaac, Y5/D-2/II/101, Pauline, Y6/C-2/II/30, Rosemary, Y8/D-2/II/98, Kirsty, Y8/D-2/II/99);
- ⇒ *Killingworth Library* (Larry, Y5/C-2/II/26);
- ⇒ *Wallsend Library* (Jeff, Y9/B-3/II/77).

All these libraries lie within the borough of North Tyneside but one in an adjoining county was also exploited:

⇒ *The library of Astley Community High School* (Jim, Y5/D-2/II/100, Andrea, Y7/D-2/II/97).

Patterns by school phase

Among first schoolers, the named public libraries visited were either North Tyneside Central Library or libraries within the case study town (i.e. those of Whitley Bay and Monkseaton). A contrasting picture emerged with respect to older participants, with several indicating that they went to libraries beyond the case study town and the Central Library. The use of libraries further afield reflects the fact that, whereas the overwhelming majority of the pupils within the first schools lived on the estates immediately surrounding the premises, substantial minorities of those attending the middle and high schools came from outlying areas. Isaac (Y5/D-2/II/101), who lived in West Allotment, some four and a half miles by road from the middle school he attended, went to Shiremoor Library which was much closer to where he lived. The same library was used by Pauline (Y6/C-2/II/30), who also lived in Shiremoor.

The relatively low levels of use of the Central Library among high schoolers surprised the researcher. He had expected its use to be greater since youngsters within this phase might have to look beyond their own branch libraries in order to find information for increasingly detailed or specialist school assignments. Murray (1985: 59) and Fourie and Kruger (1994: 103) found that the older pupils in their studies used the main libraries to a greater extent than their younger counterparts. Again, however, findings are indicative of the limited or even non-existent use made of public libraries by many teenagers, who obtained much of their information elsewhere. Nevertheless, exploitation of the Central Library was still greater in the middle and high school phases than at first school level.

Rationale for use of a particular library

Most youngsters made use of a given library because they had grown accustomed to visiting it with their parents. Many thought of a particular library as "*theirs*" and did not consider alternatives. The youngest children, of course, had no option but to use their parents' choice as they relied on them for transport and safe passage.

Although some, such as Rosemary (Y8/D-2/II/98), visited a certain library simply because it was close to where they lived, size of collection proved a significant factor in the decisions of other youngsters or their families. Piers (Y5/D-2/II/104) was aware that, in recent years, his mother, who accompanied him, had indicated that, because of its greater size, they should exploit the Central Library, rather than the local branch library they were used to visiting. Similarly, Paula (Y4/A-1/II/118) explained how her family went to the library of Whitley Bay, rather than Monkseaton, "cos my Mum thinks it's bigger and got more things". The same argument was made by several youngsters for whom both could be considered local libraries. Alice³ (Y3-Y4/A-1/FG/12), Suzanne (Y6/D-2/II/21) and Norman (Y8/D-2/II/106) all stated that, although Monkseaton Library was closer to where they lived, they nonetheless favoured Whitley Bay. Norman elaborated, "I'm two minutes' walk away from Monkseaton but it's not a very good library. Too small." He preferred to make the additional effort required to go to Whitley Bay. Norman's behaviour suggests that, for some youngsters, size of stock is a

greater determining factor in the use of a particular library than proximity. Alice's normal Saturday morning routine took her into Whitley Bay for a gymnastics lesson, and, to her, the prospect of travelling by car to the more distant library there was scarcely more inconvenient than using that "just round the corner" from her house. Jeff (Y9/B-3/II/77), a long-time user of Wallsend Library, had begun visiting it when he and his family lived in the town and, although they had now moved several miles away, they continued to exploit the library there. Clearly, the behaviour of Jeff and his parents was based on a long-established habit. The data of Alice and Jeff demonstrates that, where private transport is available to youngsters, differences in distance of only a few miles may be unimportant.

Use of multiple libraries

Whilst most youngsters used either a single library or none at all, some visited more than one. Maria³ (Y3-Y4/A-1/FG/12) was alone in going to as many as three, although she indicated using Monkseaton, the smallest, only if she were going on behalf of a friend who believed this library to be especially well stocked in an area in which she desired information. Those visiting more than one library usually described highly specific circumstances in which each was utilised. Larry (Y5/C-2/II/26), who went to school in Whitley Bay but lived in Killingworth, found libraries in both towns convenient. The former could be visited before travelling home from school in the evenings and the latter, which he used more frequently, was readily accessible from his house. Almost seven and a half miles by road separate the libraries of Whitley Bay and Killingworth and most of the informants using two libraries exploited two that were closer to their homes. When seeking, for school, information on New Zealand, Joan (Y4/C-1/II/52) had first visited the library at Monkseaton but, on finding little material of value, then tried that at Whitley Bay. Several youngsters in the middle and high school phases used both a branch library and the Central Library (Candice, Y6/D-2/II/16, Suzanne, Y6/D-2/II/21, Dennis, Y8/C-2/II/40, Emily, Y10/B-3/II/82, Toby, Y11/B-3/II/87). Candice's decisions were based on convenience and the type of need. Where information was required during the week for school work and the need was urgent, she usually went to Whitley Bay but, where she sought material for "personal reading" and the need was less pressing, she went to North Shields.

Relative use of children's and adult sections

Differences emerged in the relative use of children's and adult collections within public libraries by youngsters of different ages. Without exception, all first schoolers who visited the public library exploited only the children's part, whilst all high schoolers went to the adult collection exclusively. Among middle schoolers such clear lines of demarcation fail to emerge. Although some, like Christine (Y5/C-2/II/47), never used the adult stock, this behaviour was rare. Suzanne (Y6/D-2/II/21) and Linda (Y7/C-2/II/36) preferred to go to that part of the library aimed at youngsters, and only if their efforts were unsuccessful did they approach the adult collection. Jonty⁷ (Y7-Y8/D-2/FG/10) reported similar behaviour, asserting, "I go to the children's library 'cos it's... easier to find what you want but if there's not enough information on what I want I'll have a look in the adults' section." His attitude is comparable to that of Dirk (Y7/D-2/II/94) in relation to children's encyclopedias, which he praised for the ease with which their information could be understood but criticised for lack of detail. In specific

information encounters, redirection from the children's to the adult department was sometimes at the instigation of an accompanying grown-up. Gillian⁵ (Y5-Y6/D-2/FG/3) explained how, for a school project, "I couldn't get anything from the children's so my Mam said, 'We'll take my ticket and use the adult library because it's got a lot more books'." Barry-Rodriguez (1999) has found behaviour in which the children's section remains the first choice collection and use of the adult stock is limited to "reactive situations" when youngsters must respond to shortcomings in provision in their chosen department to be common among young public library users. Furthermore, the age at which he identifies it to be especially prevalent coincides exactly with the middle school phase. Kinnell (1994: 83) believes that youngsters typically make the switch from using the children's collection to that of the adults "at any point from 11 to 18", although results of the Whitley Bay project suggest that the transition, which is gradual, rather than immediate, is made at the younger end of this age range.

Some middle schoolers had clear ideas about the circumstances when they should use the different sections. Generally, the adult collection was considered more suitable for information in depth or on highly specialist topics. Rick⁷ (Y7-Y8/D-2/FG/10) explained that the decision on which part of the library he should visit was determined by "what I'm looking for. If I'm looking for something detailed, for school, I'd go to the adults' section". A similar line was taken by Larry (Y5/C-2/II/26) and Louise (Y8/C-2/II/45), the latter recognising the need to use the adult department when undertaking a school project on the English Civil War.

Perceived benefits of libraries

Younger informants who regularly visited the public library rarely identified specific characteristics that prompted them to use it. They went simply because a trip to it was part of their family's routines. Older youngsters who made the decision to go of their own volition occasionally isolated particular reasons. For several of those who lived close to it, the organisation seemed an obvious information resource. Rosemary (Y8/D-2/II/98) explained, "I live right next to it so I just pop round." Access to materials unavailable elsewhere was a common justification. Zack's (Y5/C-2/II/27) argument was typical: "I like it because you can get books that you haven't got."

Problems associated with the use of libraries

Non- and frequent users alike made significant criticisms of libraries and the materials within them. Pamela⁸ (Y7-Y8/C-2/FG/5) was deterred from borrowing books by their weight, a problem exacerbated by the fact that she generally visited the library on foot. All members of Pamela's focus group were highly critical of public libraries. None visited them regularly and opening hours were thought to be inconvenient. Darren⁸ (Y7-Y8/C-2/FG/5) considered them ironic in view of his commitments as a pupil: "During the week they're a real problem. I mean, they're open during the day when you can't use them, then they're only open until five o'clock in the evenings after school when you've got the chance." Darren contrasted the limited accessibility of libraries with that of his home computer. "That's always there," he commented approvingly. The facts of library opening hours did not entirely support Darren's opinion, however. A local branch, that at Whitley Bay, was actually open until *seven o'clock* on Tuesdays and Thursdays and until *half past-five* on Mondays and Fridays. Shut all day on Wednesdays,

the library closed at five o'clock only on Saturdays. Nevertheless, *perceived* inconvenience proved a major barrier for many middle and high schoolers. Hayter (1998: 64) has found evidence of similar misconceptions among her informants. The work of McCrossan (1970: 87), Chelton (1985: 24) and Meyers (1999: 42, 45), as well as Hayter, has also drawn attention to the inconvenience of public library opening hours for youngsters. Several informants were discouraged by the time/effort required to make a library visit. Candice (Y6/D-2/II/16) revealed how, if she were unable to find material in the public library or it merely duplicated what was available to her at home, "I feel it's [a trip to the public library] all been a big waste of time". Frank⁵ (Y5-Y6/D-2/FG/3) was more likely to use the public library for homework when he had the weekend in which to undertake the task. When he had shorter time, he was inclined to use the home collection. A similar predisposition towards domestic sources was reported by Eileen (Y12/B-3/II/66) but, for her, comfort considerations were more important. Although she used the local library to borrow CDs, she preferred her "private library" for information on the grounds that the surroundings were more congenial "and my Mum always keeps me going with cups of coffee".

Teenage opinion varied as to the value for school work of stock within public libraries. Duncan (Y12/B-3/II/84) was glad to find "a book or two at the public library with short pieces of information" when tackling a Biology project on the sensitivity to light of maggots but Melvyn¹³ (Y12-Y13/B-3/FG/9) was less impressed. He had failed several times to find material sufficiently relevant or specialist and was scathing of his library's inter-library loans procedure. He commented, "I've found it [the local public library] rubbish, really. They mess you around and say, 'Oh, we'll get you this, we'll get you that,' and then they say, 'Come in some other time,' and when you do they don't know anything about it. So I think, 'I can't be bothered. I'm out of here.'" His criticism provoked instant agreement from Bradley¹³ (Y12-Y13/B-3/FG/9). He added, "Yeah, they do say that. They say that they'll get it for you but they never do."

In contrast to Melvyn, who believed that the public library stock was insufficiently detailed for his needs, several middle schoolers were overwhelmed by the size of the adult collection. An awe-struck Gillian⁵ (Y5-Y6/D-2/FG/3) quipped that "it seemed to have the history of everything", and Jonty⁷ (Y7-Y8/D-2/FG/10) admitted that he was unable to use the section without assistance from his parents. He explained that when he visited this part of the library "my parents go and help me... 'cos the adults' section is massive". Such comments are indicative of a key dilemma affecting youngsters in the later years of middle school. Their academic work requires them to obtain information that may be too specialist for the children's section of the public library but they lack the skills to exploit the adult stock. Dalrymple (1990: 272) writes of the manner in which the requirement of the user to adjust to the library's "way of representing knowledge" can be a key barrier to information-seeking success. Here, youngsters, who, in recent years had learnt to find their way around the children's collection, were now faced with a further challenge on an imposingly large physical scale. McDonald (1986: 104), too, notes the confusion felt by young teenagers faced with the adult collection for the first time and considers this to be a significant factor in the lapse in library usage associated with youngsters of this age. The situation in Whitley Bay was exacerbated by the fact that the youngsters' school libraries were very small and provided poor preparation for the use of the adult section of a public library.

Where library visits were made with relatives, young users were occasionally thwarted by the need to carry out their information-seeking activity within a short period that was terminated by an adult's decision that they should at this point return home. Again, this pattern results from the dependency of young children on their parents. It proved particularly frustrating for Penelope (Y2/C-1/II/55), who, seeking information on the Millennium Dome, recounted, "I didn't have time to look properly. Mum said, 'Penelope, can you hurry up please?' so I said, 'Okay,' and just had to grab a book."

Variations in use over time

Several middle and high schoolers recognised that their use of public libraries had varied over time, often as a result of a change in the circumstances of either themselves or their families. Reduced use was frequently a corollary of the youngster gaining ready access to a new or improved information source that meant that he or she was now less reliant on the library. Mandy (Y11/B-3/II/69) acknowledged that whereas she had used the local public library "quite a lot" in the past and still occasionally visited the borough's central library, she was now more inclined to consult the books within her school library. She had formed a low opinion of the library within her previous school (School C-2) but considered that in her high school a vast improvement. Mandy attributed the superior library provision to the fact that the high school was a bigger organisation. Lesley (Y9/B-3/II/78) had also found that her use of her local library had declined after she had moved from School C-2 to the high school. Dirk (Y7/D-2/II/94), too, admitted now using the public library less than in the past, although here this was due to his acquisition of a new home computer, whose information-providing potential he exploited. He confided, "I haven't really been for a while since we got the computer." For a few youngsters, however, a downturn in their use of the public library was not the result of access to other resources. Scarlett (Y10/B-3/II/80) explained how, after moving further away, she no longer visited North Tyneside Central Library with the same frequency as before.

Other youngsters indicated that their use of the public library had risen recently. In Douglas's (Y7/D-2/II/93) case this was due to the fact that his father, who had just renewed his own library card, urged his son to make greater use of the service. In Douglas's words, "Dad *tells* us to go to the library." A similar impetus was provided by Jeremy's (Y5/C-2/II/28) mother: "My Mum's just got us and everyone in the family a library card so we can get our own books out. Now we go there quite a bit".

Surrogate use of public libraries

A few first and middle schoolers reported that visits to the public library for information were, for the most part, made not in person but by their mothers. In all the reported cases the material required was sought for school work. Some youngsters had reached an agreement with parents for this purpose (Rick⁷, Y7-Y8/D-2/FG/10, Wendy, Y4/C-1/II/53). Whilst Wendy suggested that, if one person at home was paying a visit to the library, it "made sense" for that person to attend to the needs of the rest of the household, Rick indicated that he *had* to rely on such an arrangement "because I usually don't have time". He elaborated by listing a range of his own commitments, including after-school clubs and homework, which, in his view, made a personal visit impossible. Whereas Wendy and Rick exploited

the fact that parents made their own regular trips to the public library, on occasion mothers visited specifically for information for their child's homework assignment (Linda, Y7/C-2/II/36). Past research suggests that Rick's belief that he had insufficient time to visit the public library is common among older pupils. Indeed, in South Africa, Gillard (in Ahrends, 1983: 16) argues that activities, including clubs, which compete for a share of the youngster's time are a key factor in the drop in library use among this age group. Similarly, the lack of time resulting from involvement in other activities was most frequently cited by youngsters participating in a survey by Hertfordshire Library Service (1986: 33) as the reason for their no longer making visits to the public library.

Surrogate information-seeking within libraries has been observed by several commentators. Gross (1997: 163-64, 1998: 3, 2000: 11) refers to inquiries of this type to satisfy homework requirements as "double imposed queries", and practising librarians Lorie (1993: 15-16) and Horning (1994a: 57, 1994b: 13) write of the prevalence of parents using public libraries for material for their children's assignments.

School and public libraries compared

Several middle and high schoolers compared the merits of their school and local public libraries. Anneka (Y6/D-2/II/19) preferred the latter on the basis of convenience ("I'm not just limited to lunch times; I can go in any of my spare time") and its larger stock ("It's got a wider range of books"). Kirsty (Y8/D-2/II/99), too, commented on the fact that the school library "hasn't got as much information" as her local public library, and Rose⁶ (Y5-Y6/D-2/FG/3) recognised that her local library had "more stuff in it... more non-fiction stuff". Youngsters in work by Petty and Reid (1963: 214, 215) and Burks (1996: 146) have echoed these findings, with considerable numbers drawing attention to the greater convenience of and more extensive stock within public libraries. The latter point was also made by many teenagers in Gallo's (1985: 737) study.

For Frank⁵ (Y5-Y6/D-2/FG/3), the context of the need determined the library he used: "If something crops up at school, I go to the school library but otherwise I go to Whitley Bay because it's a... bigger library and I might find out more than in the school library." Alexandra⁶'s (Y5-Y6/D-2/FG/3) line of thinking was similar, "If I have to find out for a lesson the same day I go to the school library but if... you can take the work home, I go to the public library." Clearly, for Alexandra, on occasions the lack of available alternatives demanded that she use the school library. A further contextually-rooted argument was expressed by Gillian⁵ (Y5-Y6/D-2/FG/3), specifically in terms of the type of need: "If it's for something I'm doing in my own time - not what I had to do or anything - I go to the school library but if it's for something I have to hand in, then I need *precise* information and I go to a *proper* library." To Gillian, the school library was apparently not a "proper" library. Bridget⁵'s (Y5-Y6/D-2/FG/3) motivation was influenced heavily by convenience considerations. In several cases she had visited the school library initially and only "if there wasn't any books there or not very much or if I felt I wanted more information I went to the public library." The convenience of the school library was also a key factor for Sixth Former Tessa (Y13/B-3/II/75). Asked why she used the library of School B-3 much more frequently than her local public library she admitted, "It's just ease really. If I've got a free lesson then I'm more tempted to walk just across the building to get to the library than walk into Whitley Bay or Monkseaton";

- **museums.** Several first schoolers had recently visited museums. For some, the trip was simply a family outing and the organisations were not approached in order to satisfy information needs (Sally², R-Y2/A-1/FG/11, Victor², R-Y2/A-1/FG/11, June, Y3/C-1/II/57, and Fiona⁴, Y3-Y4/A-1/FG/12). A few informants, however, went specifically to learn more about a subject of interest to them. Sasha (Y4/A-1/II/117) attended an exhibition in Newcastle's Hancock Museum because she thought it might feature volcanoes, which held particular interest for her, and Will⁴ (Y3-Y4/A-1/FG/12) went to the same place to learn about the Victorians when a relevant exhibition was being held. Once at a museum, even youngsters originally going for entertainment found information needs to emerge in relation to the exhibits they saw. Indeed, Sally explained how, if she wanted to know more, she read "the little signposts";
- **Tourist Information Centres.** Although several youngsters sought information from these agencies, in all but two instances their efforts were largely ineffective. Lack of success usually resulted from the fact that Tourist Information Centres were not being used for their intended purposes. Seeking information on Seahouses for a local studies project, Alexandra⁶ (Y5-Y6/D-2/FG/3) was dismayed to be offered only "things about ferry trips". Pamela⁸ (Y7-Y8/C-2/FG/5), Dennis (Y8/C-2/II/40) and Eric (Y8/C-2/II/41), again undertaking local studies work, visited a similar organisation. Once more their perceptions were very negative. According to Pamela, "I must have picked up thirty leaflets. None of them were any use." Eric was only marginally more impressed: "Most of them [the leaflets] were absolutely no use at all. There was one that was a lot of use and another that was some sort of use."

When youngsters visited Centres for their intended purpose attitudes were different. During a family holiday in the Lake District, Linda (Y7/C-2/II/36) had gone to the local office "just to see what you can go and do in different places". She was provided with appropriate information. May (Y7/C-2/II/34) reported another successful information encounter, again in relation to a family outing. Recounting how, after visiting a farm with her school, she wanted to make a second trip with her father, May went to a Tourist Information Centre to learn its location and the route they should take;

- **miscellaneous bodies.** For some middle and high schoolers, a range of additional organisations were important sources of specialist information for assignments. On each occasion the approach was prompted by an adult. In some cases contact was made over the telephone. Undertaking a project on drugs, Bill (Y7/C-2/II/39) explained how his teacher had drawn his pupils' attention to bodies that dealt with this problem professionally. Bill traced the telephone number of one such organisation via a telephone directory and contacted it. Although no information was provided on the spot, Bill's details were taken and leaflets were despatched. A similar sequence of events was reported by Clint (Y7/C-2/II/38), only he had obtained the organisation's contact details from his teacher. A comparable pattern was described by Linda (Y7/C-2/II/36), who was led to write to an "Islamic embassy" on the advice of her RE teacher, for whom she was producing work on the Hajj. The enthusiasm of Linda and her colleagues for this course of action had grown when the teacher had shown her pupils "a big pack of things" she had received when writing to such an embassy in the past. In this case demonstrable success had encouraged particular information-seeking action. The combined experiences of Bill, Clint and Linda also indicate the importance of advice from the teacher in shaping information-seeking behaviour.

Other specialist organisations professionally involved in the subject at the heart of particular information needs were contacted by Andrea (Y7/D-2/II/97) and Benny⁹ (Y9-Y11/B-3/FG/8). The former telephoned the “cat and dog shelter” when seeking information on the whereabouts of her lost canine, and the latter contacted the British Army for details of the qualifications necessary for entry. Although both youngsters exploited specialist organisations, the two situations reflect two different types of need; Andrea was acting in response to a life problem and Benny was seeking information for self-development. The use that may be made of organisations such as those approached by the youngsters has been recognised by Wilson (1981: 4), who describes how establishments “may perform information functions in addition to a primary, non-information function”;

- *parental workplaces.* In two instances participants exploited materials secured on their behalf by parents from their places of employment. Jean (Y11/B-3/II/70) outlined how her mother, a practising librarian, regularly obtained for her books from where she worked and which she thought were appropriate for particular school assignments. In the same way, Colin⁴'s (Y3-Y4/G-1/FG/2) mother, a local teacher, borrowed materials from her school to provide him with items pertaining to his academic work. Neither youngster was with the adult when the selection decisions were made.

Levels of book use

Rarely did youngsters indicate that books were their first choice information source, although many, especially in the first two school phases, highlighted situations in which they had mostly or exclusively employed books when acting on particular information needs. Some youngsters with electronic sources available to them in the home still predominantly used books. This was true of Joan (Y4/C-1/II/52), when tackling her own project on animals. Christine (Y5/C-2/II/47), Harvey (Y6/C-2/II/33) and Norman (Y8/D-2/II/106) also typically consulted books, yet all informants had domestic CD-ROM and Internet access. The youngest two participants usually used their own or family's books rather than those of the public library. Christine's behaviour was partly determined by convenience and practicality, rather than choice, however. She indicated that she used the computer only “if Dad's home”, as he was the sole member of the family who had mastered the requisite switching on and loading procedures.

Nevertheless, among some first schoolers books even in the home were resources that took second place to electronic materials, despite the fact that their IT skills were still quite rudimentary. Wendy (Y4/C-1/II/53) indicated, “I usually look things up on the computer. If I can't do that I look in books.” Several recognised the limits of books in terms of the subjects they addressed and were aware that certain areas of knowledge were unlikely to be covered in this type of source. Curtis (Y3/A-1/II/115) spoke of how he determined whether or not the subject was “something that might be in a book” before deciding upon the type of materials he should approach. Some high schoolers expressed similar attitudes, although not all were accurate. Emily (Y10/B-3/II/82), collecting background information to inform a dramatic production on drug-taking, wanted to learn about how people react under the influence of drugs. She immediately ruled out the use of books “because I don't want the facts and figures” and seemed unaware that these sources could provide the type of information she wanted. Greg's (Y9/B-3/II/76) relative levels of use of paper and electronic materials were dependent on the type of information required. He relished using the computer when pursuing material for school but had opted for books when investigating how to make pasta for an FT assignment. He

commented, "After all, you can't really check the computer for that. It would be a bit hard." Struggling to elaborate, Greg added only, "That's not really what the computer's for."

Observation was preferred by some of the youngest participants and it was often a viable method if the subject under consideration was an accessible "real-life" phenomenon. Edgar (Y2/A-1/II/111) was interested in cats and watched his neighbour's keenly but had never looked for information on felines in books, although to satisfy his interest in outer space he consulted his books on the subject without hesitation. Even at the early age of seven, Edgar, like Greg, had learnt that different subjects lent themselves to different information-seeking behaviour and employed various techniques as appropriate.

i) **membership of mail-based, special interest clubs.** Here information was made available to members - at regular intervals and on demand - on matters pertaining to the subject of the club. Rarely, if ever, did members meet face-to-face. Francis⁸ (Y7-Y8/D-2/FG/10), who was keen on wildlife, explained how the club that he had joined kept him up-to-date with the life of the whale that had appeared in the movie, "Free Willy";

j) **exploitation of other people.** This proved the most frequently-employed method of seeking information, a pattern which has emerged in much previous work. The popularity of other people in this context has been noted by Fasick and England (1977: 8), Amey (1985b: 26), Liesener (1985: 13), Hertfordshire Library Service (1986: 28), Pitts (1994: 232), Fieguth and Bußmann (1997), Latrobe and Havener (1997: 192, 194-95), Hayter (1998: 54, 80) and Dobson (2000: 41) in relation to young people's information-seeking, and Faibisoff and Ely (1976: 10), Dervin (1976b: 327) and Krikelas (1983: 11, 15) in more general contexts. Whilst those approached were usually people familiar to the youngsters, older informants, in particular, realised that certain individuals were more appropriate than others in specific circumstances. The people consulted for information can be grouped into three types:

- *people of convenience*, chiefly parents and siblings, who were asked simply because they were readily accessible;
- *those in a comparable position*, often friends, who faced a need similar to that of the informant;
- *experts*, such as teachers, who possessed specialist knowledge in relation to the subject of the need.

The roles of particular individuals were flexible and their status often varied according to the need. A parent, for example, might be asked for information as a result of convenience in one situation but on the basis of his or her experience in another in relation to a different subject.

Other people and information needs

A range of types of need was addressed by those approaching other people for information and the number of types was greater than that addressed by youngsters using any other form of source. Latrobe and Havener (1997: 194-95) have also highlighted the diversity of needs youngsters seek to satisfy using other people. Often other individuals formed the first port-of-call for Whitley Bay youngsters. The needs involved advice, spontaneous "life situation" information, personal information, affective support, empathetic understanding, support for skill development, school-related subject information, interest-driven information, self-development information, reinterpretations/supplementations and verificational information.

Information in relation to most of these types of needs was imparted during question and answer dialogues in one-to-one situations, although a different pattern frequently emerged when support for skill development was sought from other people.

- *Advice.* All attempts to satisfy needs associated with advice involved the use of other people. This is consistent with Latrobe and Havener's (1997: 194) assertion that "external sources", like books, are of little value when dealing with matters such as interpersonal problems. A wide variety of needs of this type was tackled through the use of other people. Among young children, several involved guidance on the handling of disputes with others (Josie, Y2/A-1/II/110, Vanessa, Y5/D-2/II/14). In other instances, where more urgent action was required, especially with regard to health matters, advice was frequently sought from the nearest available known adult (Edgar, Y2/A-1/II/111). Sometimes, however, when medical complaints or conditions were more serious, specialist advice from actual practitioners was needed (Joy, Y12/B-3/II/67). In rare cases guidance from both parents and medical staff was requested. Tanya (Y8/C-2/II/46), deciding whether or not to have a brace fitted on her teeth, consulted her orthodontist and her mother and father. A few older informants sought advice from non-family members who played important roles in their lives. May (Y7/C-2/II/34) asked for guidance from her dance teacher, as well as her parents, on whether or not she should perform a particular routine in a public performance. Very occasionally, youngsters solicited opinions from people hitherto unknown to them. Ruth (Y6/C-2/II/31), after raising money for an animal charity and faced with the task of deciding how her money should be spent, visited the charity's base and took advice from staff. The experiences of May and Ruth illustrate the importance of suggestions from professionals in particular areas of life affecting youngsters.

Practical problems unexpectedly emerging in everyday life were common causes of approaches by youngsters to adults for advice and the nearest friendly adult was usually asked. Natasha (Y1/G-1/II/9), who inadvertently locked herself in a toilet whilst on holiday, shouted to her nearby father for advice on what she should do. On other occasions, such an adult was not always available at the time of need. Frank⁵ (Y5-Y6/D-2/FG/3) and his brother found a stray kitten when walking their dog and agreed that they should ask their mother for guidance but, as she was not with them at the time, were unable to consult her until they returned home. Some chains of people emerged when the individual first approached felt ill-equipped to advise. After learning that her computer was infected with a virus, Naomi (Y5/D-2/II/12) went to her father and he, lacking experience in the problem area, contacted Naomi's grandfather. The fact that he possessed a degree of specialist knowledge in relation to computer viruses is indicative of the fact that members of the family were on occasion experts in the matter on which the informants sought advice. Jeff (Y9/B-3/II/77), who had aspirations to be a fireman, wanted recommendations on which subjects he should pursue when selecting those for his forthcoming GCSE courses so that his choices would be appropriate for his future career. His father, an ex-firefighter, advised him. Ed⁹ (Y9-Y11/B-3/FG/8) reported not only asking his father for advice on his GCSE options but also the brother of a friend who had in the past taken a particular subject that Ed was unsure whether or not to select.

Where advice was required on other academic matters, this was frequently sought from teachers. Pauline (Y6/C-2/II/30) consulted one of hers before deciding if she should tackle an additional

SATs paper. Rarely, however, did informants seek guidance from teachers in situations unrelated to education, although one such instance was recounted by Cathy (Y6/C-2/II/32). After a dispute with her best friend, she asked her teacher how she should inform others, including her mother and father, that her relationship with the girl was at an end. In some academic situations, parents were asked to make an input into their child's decision-making process, even if they lacked any specialist knowledge. Faced with the task of selecting a topic for an assignment, Lesley (Y9/B-3/II/78) admitted, "I asked [my parents] to get some ideas of what I could do."

Youngsters occasionally sought advice from parents on matters involving friends. Candice (Y6/D-2/II/16) recalled how she had consulted her mother about what should be done by a girl who was being bullied. Other informants requested guidance when making decisions that affected others. Cathy (Y6/C-2/II/32), who had to determine whether or not her terminally ill pet rabbit should be "put to sleep" by the vet, asked a parent, as did Clint (Y7/C-2/II/38) in relation to what he should buy certain members of the family for Christmas. In an unusual situation, the guidance required by Clint was sought in two stages. Initially, his mother suggested "the sort of things they'd like" and, subsequently, whilst looking at actual products in shops, he took the advice of friends who accompanied him;

- ***Spontaneous "life situation" information.*** Where information was sought in response to problems, again an adult on hand at the time was usually asked at the point when the need arose. For example, Melissa (R/A-1/II/121), who discovered that her toy rabbit was missing from the bicycle that she had left outside a shop whilst buying groceries with her mother, immediately asked the parent where it had gone.

Several problems and curiosities related to word meanings. When a definition was sought at school, Barbara (Y4/G-1/II/22) asked her teacher and, on a similar occasion at home, Victor² (R-Y2/A-1/FG/11) and Judy (Y5/D-2/II/13) consulted their fathers. Victor by far preferred this method to using a dictionary. Barbara also recalled that, after questioning another person, she had learnt how an unfamiliar word should be pronounced in addition to its meaning. Here, the ability of other people to use the oral channel of communication was a major benefit. A compound approach to learning about another matter emerging from a "life situation" was described by Karen (Y1/G-1/II/7), who was keen to know about the production of bread. She asked her mother for information and also observed a situation in which she made bread;

- ***Personal information.*** In most cases where information of this kind was required, informants consulted close members of the family - usually mothers - or friends. The subjects included domestic arrangements (Beverley, R/A-1/II/109, Raymond, R/G-1/II/10) and medical diagnoses (Len¹, R-Y2/C-1/FG/7, Daisy², R-Y2/C-1/FG/7, Nicholas², R-Y2/C-1/FG/7). Friends proved an especially important source of "school gossip" (Liana, Y13/B-3/II/90);
- ***Affective support.*** If action was taken to satisfy an affective need, this invariably involved consultation with other people. The matters causing anxiety and addressed in this way varied widely and, in total, embraced

⇒ *recent events that had perturbed the informant*, including disputes with others (Meredith, Y2/C-1/II/56), the natural loss of deciduous teeth (Derek, Y2/G-1/II/6), the death of an adult well known to the youngster (Siobhan⁴, Y3-Y4/C-1/FG/6, Christian, Y4/G-1/II/2, Norman, Y8/D-2/II/106) and

disappointment at a score in a class test (Joan, Y4/C-1/II/52). Joan was unusual in seeking support from a member of her immediate family who was not her mother or father. She turned to her brother some six years her senior. In most situations in which she required emotional support, she preferred to consult him, instead of her parents;

- ⇒ *current matters of concern*, such as the youngster's own health (Len¹, R-Y2/C-1/FG/7, Diane, Y4/G-1/II/1, Barbara, Y4/G-1/II/22), illness of others (Barbara, Y4/G-1/II/22), bullying (Kevin, Y7/D-2/II/95, Kirsty, Y8/D-2/II/99) and the divorce of a parent (Norman, Y8/D-2/II/106);
- ⇒ *impending unpleasant situations or challenges*, like a visit to the dentist (Beverley, R/A-1/II/109), a long-distance swim (Tim⁵, Y5-Y6/C-2/FG/4), exams (Gus, Y12/B-3/II/65) and performing to an audience (Eileen, Y12/B-3/II/66). Again, members of the family were often consulted, although Eileen discussed her anxieties with friends. The latter is further evidence of the importance of the peer group in the life of the teenager.

In some instances affective support was provided by those directly involved in the situation causing the youngster anxiety. Upset by his mother's divorce from his stepfather, Norman (Y8/D-2/II/106) "talked it over with my Mam". He discussed many situations in which his mother had provided him with affective support, including one involving the recent death of an aunt. Just as Joan readily consulted her brother for support, Norman typically turned to his mother. A reliance on the female parent in specific situations was common. Indeed, in most cases affective support was sought *solely* from the informant's mother, although Christian (Y4/G-1/II/2) consulted several members of the family - his mother, father and grandmother - when his grandfather died. Where affective support was solicited from non-family members, the informant had a trusted friend who could be relied upon for sympathy (Barbara, Y4/G-1/II/22, Kirsty, Y8/D-2/II/99);

- *Empathetic understanding*. No action was taken to satisfy most of the reported needs for empathetic understanding. In the sole exception, Toby (Y11/B-3/II/87) explained how he had approached a psychologist to discuss with him why a close friend had tried to kill herself. Toby proved the only informant to admit seeking professional help in response to emotional issues;
- *Support for skill development*. The use of other people formed easily the most popular method of tackling needs of this type. Two forms of delivery were apparent in terms of the way in which the information was provided:
 - ⇒ *group tuition*. This involved the provision of information, usually of a fairly generic character, to several youngsters simultaneously. Typically, those within the group possessed a similar degree of knowledge in relation to the subject of the teaching. The decision to seek information that was provided through group tuition was generally premeditated. Often youngsters were keen to develop particular skills and enrolled for sessions or clubs in which they were taught by an instructor;
 - ⇒ *individual tuition*. Here the information offered, frequently elicited via a question and answer dialogue, tended to be highly specific to the inquirer, and the teaching was marked by a greater degree of interaction between the adult and the learner. In most situations, the youngster sought attention spontaneously and on an isolated basis, sometimes in response to problems that had recently been encountered, although a few teenagers, who were developing certain skills to a high level, attended regular, one-to-one coaching sessions. Those providing individual tuition were more

diverse than those offering group teaching and included school teachers, specialist coaches/instructors and a range of relatives, including parents.

If information pertaining to skills were sought at school, these needs were usually met by the teacher (Barry, Y2/A-1/II/112, Don, Y2/G-1/II/4, Lynne, Y3/C-1/II/49, Damien⁴, Y3-Y4/A-1/FG/12, Will⁴, Y3-Y4/A-1/FG/12, Siobhan⁴, Y3-Y4/C-1/FG/6, Christian, Y4/G-1/II/2, Tanya, Y8/C-2/II/46, Antony, Y13/B-3/II/74). Ruth (Y6/C-1/II/31) followed a general rule in relation to seeking information from other people at school. If a need emerged during the course of a lesson, she would ask the teacher, unless she considered the member of staff to be "not very nice". In most instances, youngsters lacking the required understanding approached their teachers and were taught the appropriate skills individually. Tanya, however, outlined an exceptional situation. So many pupils in her class had encountered problems with a Science homework assignment that, at the beginning of the next lesson, the teacher "went through it all again so we were all told how to do it". Many skill-related problems pertained to Mathematics, with the informants usually consulting the teacher after an unsuccessful attempt had been made to develop the skill without recourse to the adult.

Skill needs emerging domestically as a result of homework requirements were often satisfied by parents. Here tuition was always one-to-one. Again, the needs chiefly related to Mathematics, and stories were told how these were met by a mother (Maria³, Y3-Y4/A-1/FG/12, Nina, Y5/D-2/II/17, Dirk, Y7/D-2/II/94) or father (Christine, Y5/C-2/II/47, Anneka, Y6/D-2/II/19, Mandy, Y11/B-3/II/69). On occasions an informant's initial approach to a parent for information proved the first step in a chain of action. Mandy, for example, sometimes doubted the accuracy of the information given by her father when he was teaching her particular Mathematical skills. She would reflect on what she had been told and, if her scepticism persisted, she consulted her Mathematics teacher. Mandy was one of several pupils, mainly in the high school phase, who indicated how they would go to a teacher if they considered that they themselves lacked the skills necessary to complete particular homework. Tessa (Y13/B-3/II/75) also talked to her teacher about how to structure an extended piece of writing when asked to undertake an in-depth study for History.

Where youngsters sought to develop particular skills for their own enjoyment, the teaching was provided individually and in groups. In the former situation, it was usually offered by a member of the informant's family, especially within the younger half of the sample. Gavin (Y1/G-1/II/24) learnt a range of skills involving calculation after teaching from his older sister whom he sought to emulate, and Barbara (Y4/G-1/II/22) gained similar skills after instruction from her older brother, as well as her Mathematics teacher at school. More usually the information was provided by parents. Gerald (Y1/G-1/II/8) explained how his mother instructed him on how to use a "chocolate factory" he had recently received as a present. Karen (Y1/G-1/II/7) was shown how to use her family's computer by her sister and father, after she had initially experimented for herself. Mary (Y3/G-1/II/3) had approached her mother when she sought to improve her skipping ability. Alison² (R-Y2/G-1/FG/1) followed a similar course of action when wishing to develop her roller blading skills. Francesca (Y2/G-1/II/5), whose father helped her to learn how to ride a bicycle, highlighted certain areas in which she considered he had made a particular contribution - "keeping the bike still and going round corners". Maggie (Y1/A-1/II/119), who had also recently learnt to ride a bicycle, indicated that, not only had she been helped by

an older sibling but she had also been “taught” by a shop assistant who sold the bicycle to her family. Maggie explained that “some man in the shop told us about the bike and he showed me how to ride it”. Teaching of this kind was very rare among younger informants but it was much more common among teenagers for people outside the family to provide one-to-one skills instruction. Michelle (Y13/B-3/II/89) had a private coach, with whom she worked regularly to refine her ice skating abilities. Music was another area in which individual tuition was provided (Zack, Y5/C-2/II/27, Emily, Y10/B-3/II/82). Whereas the instructors of Michelle, Zack and Emily were qualified teachers, Norman (Y8/D-2/II/106) described his use of “experts” of a less formal kind. Needing to learn how to polish his boots after joining the junior Army Training Corps, he had asked “a few of my Mam’s biker friends”.

Many skills taught in groups related to sport and other active pursuits. Subjects included ice skating (Maggie, Y1/A-1/II/119), football (Tony, Y2/C-1/II/54, Derek, Y2/G-1/II/6), skateboarding (Clark², R-Y2/G-1/FG/1), gymnastics (Alice³, Y3-Y4/A-1/FG/12, Linda, Y7/C-2/II/36), swimming (Joe, Y3/C-1/II/50, Nina, Y5/D-2/II/17, Helena, Y6/D-2/II/20), hockey (Christian, Y4/G-1/II/2, Lesley, Y9/B-3/II/78), netball (Rose⁶, Y5-Y6/D-2/FG/3), dancing (May, Y7/C-2/II/34) ice hockey (Lionel, Y8/D-2/II/102), badminton (Lesley, Y9/B-3/II/78), rugby (Lesley, Y9/B-3/II/78) and trampolining (Lesley, Y9/B-3/II/78). Most of these classes involved lessons staged regularly at a certain venue, sometimes within the context of a club. An exception consisting of a single session was outlined by Clark, who, keen to enhance his skateboarding skills, recalled, “I went to this place where it had these people who were really, really good at skateboarding and one day they talked to you and showed you how to do it”;

- *School-related subject information.* Other people formed one of several sources employed by informants pursuing information for school, although rarely could most of the material necessary for detailed assignments be acquired from other people alone. Nevertheless, the subjects of some work lent themselves particularly well to the collection of information in this way. Asked to write an autobiography, May (Y7/C-2/II/34) sought details of her family history from various relatives. These individuals might be considered experts in relation to the need. Another of the rare occasions in which senior members of the family emerged as subject specialists was reported by Maureen (Y7/C-2/II/35), here in connection with a less personal topic. Undertaking a project on polar bears, she approached her grandfather who had “been polar bear watching”. Maureen’s grandfather was one of several family members whose experience in a particular field rendered them valuable sources of information on certain matters. Joan (Y4/C-1/II/52), carrying out work on New Zealand, travelled to Aberdeen “to get information from my cousins”, who had lived briefly in the country. Sometimes experience of this kind was known to exist in friends. Tackling similar work to Joan, Wendy (Y4/C-1/II/53) recognised the importance to her project of contributions from “people who know”, and outlined how she had planned to discuss her chosen country, Australia, with friends who had been to the land. In relation to a school-inspired need concerning the human body, Gavin (Y1/G-1/II/24) sought information from his older brother who had recently addressed the subject in his studies at school.

Parents, especially, were often asked for information simply because of their availability at the time of need. Most behaviour of this kind was reported by first schoolers. Wes (Y4/C-1/II/51), given the task of finding the meanings of certain words so that he could write sentences that included them,

admitted questioning "the person I was closest to at the time". Faced with identical work, Wendy (Y4/C-1/II/53) consulted her mother. Joe (Y3/C-1/II/50), needing to learn about static electricity for homework, took the unusual step of discussing the topic with his mother and father separately. Here the use of other people proved highly appropriate because Joe did not know the name of the phenomenon in which he was interested and he would have been unable to generate suitable keywords. Parents of younger informants frequently played a key role in relation to the acquisition of "in the head" information. Mary's (Y3/G-1/II/3) mother helped her learn assigned spellings, providing the initial input of writing down the words with correct spellings.

Even some middle and high schoolers used their parents as a first port-of-call when seeking information for school. Indeed, Madeleine (Y5/D-2/II/15) indicated that, before she owned her computer, she had often asked her mother for information at the outset of a homework task. Ruth (Y6/C-2/II/31), too, considered an initial step in such circumstances was to "ask your Mum". Scarlett (Y10/B-3/II/80) agreed and regularly did this. Frank⁵ (Y5-Y6/D-2/FG/3) took similar action and could forecast his mother's likely response. She normally suggested either using "Encarta" CD-ROM software or visiting the public library. In the same way, Will⁴ (Y3-Y4/A-1/FG/12) indicated that, when approaching his mother for information about the Victorians, he was not expecting her to provide the material herself. Rather, he anticipated she would "tell you what to do to find out or something like that". He revealed that this had been a typical pattern in the past. This tendency is congruent with the observations of Liesener (1985: 13), who writes that one of the roles of adults approached by youngsters for information may include "presifting the information alternatives" available to the youngster. As well as forming actual requests for information, the approaches made by Madeleine, Ruth, Scarlett, Frank and Will embraced Taylor's (1968: 182) concept of the "formalized" need involving a "qualified and rational statement" of the question. In all cases the youngsters were drawing their mothers' attention to the fact that information was needed and, in so doing, supplied her with sufficient detail about the need for her to outline a suitable course of action, perhaps to be undertaken collaboratively, for its acquisition if she could not supply material directly. Such "cries for help" came from youngsters of all school phases. Whilst many youngsters simply drew their parents' attention to problems causing them concern, a greater belief that they could actually provide the desired information was shown by Candice (Y6/D-2/II/16). She often turned to her parents who frequently helped her "with their knowledge". Sometimes the information required related to quick reference questions. Suzanne (Y6/D-2/II/21), tackling Science homework on teeth, did not know the answer to a particular question and consulted her mother. Siblings, on occasion, also made an important contribution. Zack (Y5/C-2/II/27) described the role of his "big brother" in helping him to find information in various circumstances, and Harvey (Y6/C-2/II/33) recognised that, in relation to a range of school assignments, "it's quite handy to have an older sister to talk to". As well as providing subject knowledge from her own memory, Harvey's sister was able to offer him her old exercise books. The latter situation is indicative of the fact that, when detailed information was required, it was usually provided by the family member via books rather than from his or her own head. This proved the case for Greg (Y9/B-3/II/76), who approached his father, a local History teacher, for information on "the Home Front" during the Second World War, and for Dirk (Y7/D-2/II/94), who asked both parents when looking for information on volcanoes. An unusual

instance in which an informant considered ownership of a particular assignment and the associated information-seeking to be “shared” with parents was described by Lesley (Y9/B-3/II/78). Seeking material on twentieth century inventions for work requested by her private tutor, Lesley’s decision to approach her parents was partly the result of their having advised her on the topics she should address. This led to her assumption that her parents might be able to provide information on them. Occasionally, however, the use of parents was a last resort. Ed⁹ (Y9-Y11/B-3/FG/8), when producing an assignment on the policies of the political parties, asked his parents only after watching a video in class, visiting the school library, searching the Internet and investigating books at home.

A few teenagers went to peers, rather than members of the family. For Drama work, Emily (Y10/B-3/II/82) asked friends at school about the difference between dreams and reality before consulting a dictionary. The same girl took a similar approach when wanting to learn more about the habits and behaviour of drug takers, again for Drama. In these circumstances, she believed that the use of other people was most appropriate, considering that books would be of no value as she was not seeking “facts and figures and stuff because it’s boring and it’s not how people would act about drugs”. Thus in this instance Emily’s use of other people owed much to her limited perception of the type of information that could be provided by books.

Cases in which youngsters sought information for school from experts in the world at large and who were hitherto unknown to the informant were rare. In one such situation, Andrea (Y7/D-2/II/97), requiring information on clocks for a DT project, consulted a shop assistant “in the clock department” of a large store. Collection of information from people not known to the youngster was also attempted by Toby (Y11/B-3/II/87), whose use of a questionnaire during his project on the design of a meal for one person can be considered to mark the beginning of his use of recognised research methods, especially in relation to market research. Respondents included relatives, teachers at his school and members of the public visiting the local supermarket that allowed Toby to distribute his questionnaires. This behaviour was unique among the informants in the sample. Normally, where experts of any kind, either known or unknown to the youngster, were approached, it was done face-to-face but Olivia’s (Y3/A-1/II/114) contact was via an intermediary. Seeking school-inspired material on the Romans, she described how information had been provided by her “Auntie’s friend”, an archaeologist who had worked on an excavation near Hadrian’s Wall. Her aunt relayed Olivia’s questions to her acquaintance and also reported his responses to her niece;

- ***Interest-driven information.*** As with school-related subject information, other people formed only one of several sources exploited by informants seeking material of this type. Some employed multiple methods, one of which involved the use of other people, in parallel. Keen to extend his rudimentary knowledge of rugby, Brian¹ (R-Y2/G-1/FG/1) furthered his understanding by watching games on television and talking to friends at school. For Victor² (R-Y2/A-1/FG/11), a supporter of Newcastle United Football Club, friends provided not only facts but discussion and comment. Rupert’s (Y1/C-1/II/59) father and his friend fulfilled a similar role in his life. The former was one of several parents to enjoy an expert status and share their knowledge with their offspring when their interests coincided. An enthusiastic birdwatcher, Joshua³ (Y3-Y4/C-1/FG/6) often consulted his father, himself a keen ornithologist, when attempting to identify particular species, and Glenn (Y1/A-1/II/113), who was

interested in trains, realised that his father was the most knowledgeable member of his household on the subject and frequently asked him about them. Barry (Y2/A-1/II/112) regarded his grandfather as an expert on flight and enjoyed talking to him on the subject. He attributed his grandfather's knowledge to the fact that "he was born just before the Second World War started so he knows quite a lot about aeroplanes". Within the middle school phase, Judy (Y5/D-2/II/13) approached her grandfather, an eager gardener, when wanting to know more about particular flowers. Norman (Y8/D-2/II/106), keen on alternative medicine, explained how his mother, who was attending a college course on the subject, "shared the basics" with him. Some of the youngest informants asked parents questions, the answers to which they could readily have found out from other sources had they possessed the necessary skills. Beverley (R/A-1/II/109), for example, recalled asking her mother the times of particular television programmes she intended to watch.

Several young informants posed to members of the family questions they were ill equipped to answer. Penelope (Y2/C-1/II/55) was unsuccessful when seeking from her parents information on the Millennium Dome. Alan¹ (R-Y2/G-1/FG/1) adopted a trial and error approach when wanting to learn about the rules of football, asking successively his father, mother and eventually his sister. These incidents illustrate the fact that some youngsters in the early years of first school are unclear as to the extent of the knowledge possessed by members of their family and have unrealistic expectations of the information they may be able to provide. Nevertheless, some recognised that to discuss the subject with a suitably experienced person would be more likely to elicit the desired information. Clark² (R-Y2/G-1/FG/1), commenting on Alan's behaviour, interjected, "He could have asked someone who knows all about football - someone who plays football properly." Likewise, Ian⁴ (Y3-Y4/G-1/FG/2), who wanted to find out about outer space, indicated that his preferred course of action would be to "ask someone who was going into space but I'd probably never get the chance". He conceded, "What I've actually done is to look it up on my Dad's PC," but regarded this as a poor second option. A somewhat "secondary" expert was considered potentially useful by Austin (Y3/G-1/II/23). Wishing to know more about the footballer, Alan Shearer, he struggled to identify a starting point for his information-seeking action but suggested, "I could go and see Matthew because he used to go there [to St. James' Park, home of the club for which Shearer plays] for football practice."

High schoolers were much more limited than their younger fellows in their reliance on other people for interest-driven information, perhaps because they had a greater number of information-seeking options and resources available to them. Their needs also tended to involve more in-depth information than other people, unless they were genuine subject experts, were likely to be able to provide. Furthermore, those approached by younger informants were often their parents but high schoolers were typically less reliant on their mothers and fathers in their everyday lives;

- ***Self-development information.*** Most information of this type sought by youngsters from other people involved discussions with teachers in relation to subjects to be selected for study. Greg (Y9/B-3/II/76) consulted staff before making such decisions but Harrison (Y12/B-3/II/85) had already begun pursuing a particular course for "A" Level when he asked about the procedure for dropping it and replacing it with another, as well as about the content of the course he was now considering commencing;

- *Reinterpretations and supplementations.* Sally² (R-Y2/A-1/FG/11) and Wendy (Y4/C-1/II/53) approached their teachers in order to increase their understanding of what was meant by particular questions posed to them in Mathematics lessons. When similar academic uncertainties arose for other informants, however, those asked were not always teachers. Struggling to understand a concept in Mathematics, Curtis (Y3/A-1/II/115) initially informed his mother, and Glynis (Y10/B-3/II/81) sought her mother's help when attempting to comprehend historical developments in Ireland, not because she was a subject expert but because she was available when Glynis was facing problems. Glynis recalled, "I sat down with my Mam and she tried to explain it more to me." She then read with Glynis the book she was using and simplified the events so that her daughter could grasp them. A comparable, simplifying role, albeit in a very different context, was fulfilled by Victor²'s (R-Y2/A-1/FG/11) father. Victor, too, struggled to understand material presented to him, in this case the plot of a Western film he was watching on television, and requested that his father explain story developments as they took place;
- *Verificational information.* The use of other people to confirm what was required for particular school work was indicated by Louis (Y8/D-2/II/103), who emphasised the importance of friends experiencing the same work and thus facing similar problems. In these circumstances, parents were unlikely to be of help, he thought, since there was no way they could know what teachers expected of the pupils. Similar checking with peers to confirm what was wanted by teachers was highlighted by Jean (Y11/B-3/II/70) and Liana (Y13/B-3/II/90), the latter commenting, "It helps if you've got friends in the classes that you've got... and then at break times and lunch times you can discuss the work and compare, check that you're doing the right things." Nevertheless, problems with this approach were identified by Lionel (Y8/D-2/II/102), who believed that in many cases they could do no more than "tell you what you already know".

Whilst parents might not have been aware of teachers' expectations in the content of certain assignments, they sometimes played an important role in checking the accuracy of the work that their offspring produced. Zoe's (Y9/B-3/II/79) mother, who was a primary school teacher, examined her daughter's assignments for grammatical correctness, and the calculations of Christine (Y5/C-2/II/47) and Nina (Y5/D-2/II/17) were verified by their parents after they had tackled their Mathematics homework.

Regardless of the type of need, some youngsters tended to go to certain people for whom they had a high regard. Indeed, other people, more than any other form of source, appear to transcend particular need types. Ruth (Y6/C-2/II/31) asked her older brother and sister for information in a variety of situations "when I have something I'm puzzled about". Jean (Y11/B-3/II/70), too, named specific individuals within the family - her father and grandfather - whom she approached and considered almost to be "family wise men". She elaborated, "They know a lot of what you could call useless information. Well, I mean they know a lot about different subjects." For Lesley (Y9/B-3/II/78), trusted friends provided help in relation to needs of a range of different types. Other youngsters used particular types of people in broad contexts. Michelle (Y13/B-3/II/89) drew attention to her tendency to "ask the teacher" when faced with *any* difficulties involving the production of an assignment. The issues of concern might be as diverse as problems in finding information, an inability to understand the subject of the work or an inadequate grasp of what the teacher required.

Gender issues

Where other members of the household were consulted for information, it was usually mothers who were targeted, especially if affective support, personal information or advice concerning relationships were involved. This pattern may, in part, be due to closer bonds between the mother and the youngster and to the greater availability of the female parent in the domestic environment. Some informants, such as Norman (Y8/D-2/II/106), lived only with their mothers and thus no other parent was present at home for consultation. In contrast, no youngster indicated living only with a father.

Nevertheless, male parents were approached in a range of situations. Sometimes they were asked when they were more immediately accessible than the mother and, occasionally, provided a second choice option that was exploited. Bridget⁵ (Y5-Y6/D-2/FG/3) consulted her father when her mother was unable to provide all that she required. Usually, however, fathers were asked when they seemed a more effective information provider in a specific context. This was the case where they were believed to possess a significant degree of knowledge in an area on which the youngster sought information - often technology, such as computers, and skills associated with active pursuits and traditionally male-associated disciplines. Christine (Y5/C-2/II/47), Jim (Y5/D-2/II/100), Isaac (Y5/D-2/II/101), Anneka (Y6/D-2/II/19) and Andrea (Y7/D-2/II/97) all requested that their fathers help with Mathematics homework. In some families, mothers and fathers discharged quite different tasks when providing assistance, and variations in their information-providing roles derived from these responsibilities. Anneka revealed how her mother helped with her English and accompanied her to the library, whilst her father ensured she could tackle her Mathematics homework effectively and supervised her searching of the Internet.

Forms of action taken by people approached

Where youngsters asked other people for information, those consulted responded in a variety of ways:

- ***direct, unaided provision*** - the inquirer was provided with information "on the spot" and without the person approached resorting to other sources. Essentially, this person simply told the youngster what he or she knew, although, in the case of support for skill development, an element of demonstration was also often included. Direct, unaided provision proved the most common form of action overall but, in terms of subject information, situations were usually limited to quick reference questions or instances in which the person had some expert knowledge;
- ***direct, aided provision*** - the person consulted provided information, again usually orally, but here after investigating other sources, sometimes to confirm the accuracy of his or her own ideas. No interaction between the youngster and the materials took place;
- ***provision of materials forming information*** - the person approached offered information, which took the form of specific items, usually of a pictorial nature. These were not sources from which information could be extracted in the conventional sense. Rather they could be considered to form information in themselves. Examples include the picture of a polar bear provided by Maureen's (Y7/C-2/II/35) grandfather and photographs of New Zealand made available to Joan (Y4/C-1/II/52);
- ***direction to provided sources*** - the person asked supplied materials from which information could be retrieved. Here he or she assumed the role of Kuhlthau's (1994: 65) "locator", presenting a particular source to the youngster for his or her use, although in Kuhlthau's case she was referring to the role of

librarians, rather than adults generally. Frequently, help in exploiting the materials was also provided. Usually what was offered was found within the person's home but in other instances it took the form of books from another school (Colin⁴, Y3-Y4/G-1/FG/2) or a library where a parent worked (Jean, Y11/B-3/II/70). Sources were occasionally provided by friends (Alexandra⁶, Y5-Y6/D-2/FG/3). Sometimes electronic resources were made available. Bridget⁵'s (Y5-Y6/D-2/FG/3) father suggested they should search the Internet;

- **cognitive facilitation** - the person consulted did not give the information required by the inquirer, despite the fact it was known to him or her, but offered cues and comments to assist the youngster's ability to reason out what he or she needed to know. Will⁴ (Y3-Y4/A-1/FG/12) spoke of how his Mathematics teacher "just gave you clues" when he was struggling with a particular problem in the subject at school. Damien⁴ (Y3-Y4/A-1/FG/12) had also noticed the same teacher's use of this strategy. The aim here was to "scaffold understanding", which Selinger (2000) believes to be the most important role of the teacher in the modern classroom. Within the home, Suzanne's (Y6/D-2/II/21) mother had helped her daughter in a comparable fashion when she was tackling Science homework. Not wishing to do the homework *for* her daughter, the adult provided merely a support structure;
- **access provision** - the inquirer was encouraged to use either a different method or another source that was not owned by or immediately available to the person consulted, although he or she engineered some sort of finding out situation for the youngster. When asked by his daughter for information on the Millennium Dome, Penelope's (Y2/C-1/II/55) father suggested they make a visit to the local library, and Barbara's (Y4/G-1/II/22) friend, whom she had consulted when anxious about a neighbour who was currently ill, arranged a visit to his hospital in order to reassure her;
- **referral** - the inquirer was instructed to employ either a different information-seeking strategy or another source that was neither owned by nor immediately available to the person asked, who then took no further part in the information-seeking process. It was left to the youngster to decide on the course of action that should be pursued. One of three options was taken - nothing was done, the advice of the person was followed or the suggestion was rejected and the inquirer chose a different method. In a few instances referral involved the youngster going to another adult, whom the person originally approached considered to have a greater level of expertise than him or herself. Naomi (Y5/D-2/II/12), who had asked her father for information on what she should do on learning that her computer was infected with a virus, was urged to ask her grandfather. Generally, it was older informants who were referred in this way, although, within the first school phase, Alison² (R-Y2/G-1/FG/1), who went to her mother for information on developing her roller blading skills, was urged simply "to practise". The parent took no part in facilitating this activity.

Occasionally, when youngsters were seeking information in a particular situation, different approaches were taken at different stages by the adults they consulted. Bridget⁵ (Y5-Y6/D-2/FG/3) first went to her mother for subject information on the topic of her homework. She provided all she could (via *direct, unaided provision*), before realising that she was unable to complete the task, at which point she suggested her daughter should ask her father (*referral*). He, in turn, indicated that they use the Internet (*direction to provided sources*).

Problems with the use of other people

Many past studies of youngsters' information-seeking behaviour have presented positive pictures of their use of other people. Amey (1985b: 26), for example, writes of the efficiency and effectiveness of this method. Pitts (1994: 233, 244) has described how many of the successful information encounters experienced by her teenagers involved other people. Latrobe and Havener (1997: 197) found that "people were most frequently identified as the best sources of information". Where Whitley Bay youngsters were successful in gaining the information they required from other people this was mainly a result of the fact that those consulted were sufficiently knowledgeable on the subject of the need. The interactive nature of interpersonal encounters was also beneficial as it afforded the inquirer scope to clarify the nature of the need in response to the informer's reactions and the latter was able to tailor what was provided to meet the youngster's particular circumstances.

Nevertheless, the project also found that the use of other people is not uniformly successful and considerable problems may emerge. The most common difficulty, often experienced by first schoolers, was for young inquirers to overestimate or simply not consider the level of knowledge possessed by the person approached in relation to the subject of the need. Some asked their parents questions that demanded too high a degree of specialisation. Part of the youngsters' problems in using other people can be attributed to their lack of Information Skills in other areas. As they had few alternative options available to them, they were inclined to make use of people, even though, in certain instances, they were less suitable providers than, for example, books or CD-ROM.

Where advice was sought, that dispensed by authority figures, especially teachers, was sometimes considered to be unhelpful or biased. Michelle (Y13/B-3/II/89) indicated how she had received highly dogmatic responses when consulting school staff for guidance on how to strike a balance in allocating time for academic work and her part-time employment. She explained, "Most teachers just say, 'What's more important, work or school?' and then they'll say you should be doing more for school," without addressing the problem in a more helpful fashion. Michelle believed such a response was due to the school's vested interests in pupils achieving academic success. This is reminiscent of the way in which some of the teenage girls interviewed by Poston-Anderson and Edwards (1993: 28) distrusted the contents of the school library, which, they believed, offered only "socially sanctioned information".

Occasionally, youngsters were reluctant to consult particular people, especially teachers, who might have been able to provide the required information, because they considered them unpleasant or potentially hostile. In the words of Pauline (Y6/C-2/II/30), "I wouldn't ask my teacher 'cos she's not very nice." Here, the personal dynamics associated with a face-to-face exchange proved an insurmountable deterrent. Thus, where an adult from whom information might be sought was known to the youngster, the quality of the relationship between the two parties was critical in the inquirer's decision as to whether or not to make an approach. Some feared that their questions would be regarded as inappropriate for discussion within the school environment. For example, Adrian (Y10/B-3/II/73), who wanted advice on strategies that he should adopt to stop smoking, was critical of the way, he felt, his school did not address this matter, beyond dispensing didactic, anti-smoking messages designed to discourage pupils taking up smoking from the outset. Adrian detected a resistance among staff to advise pupils on how to stop smoking once the

youngsters had made the decision to break their habit. He attributed this to the school's tendency "to pretend there isn't a problem".

The fallibility of adults was also highlighted. Especially in relation to skills teaching, the information given by parents was sometimes inaccurate. Mandy (Y11/B-3/II/69) recalled how her father had unintentionally misled her when she had asked for help with her Mathematics homework. A few adults provided information of the wrong kind. Isaac's (Y5/D-2/II/101) father, whom he, too, had approached for assistance with Mathematics homework, simply supplied what he believed to be the answers, which were ultimately revealed to be erroneous, rather than explained how to tackle the questions. Jim (Y5/D-2/II/100) reported a similar problem. In these instances, the temptation to pursue a convenient method appeared to outweigh the desire to make the effort demanded to consult a more authoritative source.

Christine (Y5/C-2/II/47) and Ruth (Y6/C-2/II/31) drew attention to the difficulties caused when conflicting information was supplied by different people. The latter indicated how, after seeking advice from her older brother and sister, there were substantial variations in their ideas. Ruth resolved the matter by making her own assessment of the relative merits of their contributions. Christine was given contrasting advice by her teacher and by her mother on how information for a school assignment should be gathered after she had been given the task of exploring what products came from Egypt. Her teacher had advised pupils to discuss the matter with a market trader, whilst her mother proposed that Christine examine individual products in order to learn their countries of origin. Ultimately, the latter advice prevailed because Christine considered she had little alternative.

Successful use of other people was also undermined by the dynamism with which people live their lives. Wendy (Y4/C-1/II/53) found herself having to change her approach after her original plans to ask others were thwarted when those she had nominated were no longer available for consultation.

Figure E¹ provides an insight into patterns associated with information-seeking within the contexts of particular needs. Each of the need types defined in the typology is addressed in terms of the action typically taken by the informants in response.

FIGURE E¹: TYPES OF INFORMATION NEEDS AND ACTIONS GENERALLY TAKEN IN RESPONSE

| Need type | Typical approach(es) |
|--|--|
| Advice [and inputs into decision-making] | Reflective thinking, use of other people |
| Spontaneous “life situation” information | Use of other people |
| Personal information | Use of other people |
| Affective support | Use of other people |
| Empathetic understanding | <i>Insufficient instances for patterns to be identified</i> |
| Support for skill development | Use of other people |
| School-related subject information | Use of “academic materials” produced by self, subject books and encyclopedias at home, CD-ROM, Internet, books found in the classroom, allocated textbooks, materials from departmental libraries, school libraries and public libraries, other people |
| Interest-driven information | Direct observation, use of toys/games, subject books at home, magazines, CD-ROM, Internet, television and video, materials from public libraries, other people |
| Consumer information | Use of magazines, Internet |
| Self-development information | Use of option booklets and university prospectuses, other people |
| Preparatory information | <i>Insufficient instances for patterns to be identified</i> |
| Reinterpretations and supplementations | Use of other people |
| Verificational information | Use of other people |

2 PREVALENCE OF THE INFORMATION-SEEKING APPROACHES

Figure F¹ lists the means of gaining information employed by the informants, indicates the range of year groups of youngsters taking each form of action and offers comments on the frequency with which these methods were used.

FIGURE F¹: PREVALENCE OF INFORMATION-SEEKING APPROACHES

| Means of gaining information | Range | Frequency |
|--|--------|--|
| Solitary methods | | |
| <i>Recall</i> | Y4-Y9 | Several instances in all phases |
| <i>Reflective thinking</i> | Y2-Y13 | Several instances in all phases |
| Direct observation | Y1-Y12 | Several instances among middle and high schoolers but most popular among first schoolers |
| Scrutiny of non-information-related products | Y5-Y11 | Two instances |
| “Doing” | | |
| <i>Repetitive practice</i> | Y2 | Two instances |

| | | |
|--|--------|--|
| <i>Exploration</i> | Y1 | One instance |
| <i>Execution of related tasks</i> | R-Y6 | Two of the three instances were among first schoolers |
| Use of toys/games | R-Y7 | All but one of the several instances were among first schoolers |
| Use of "academic materials" | | |
| <i>Produced by self</i> | Y5-Y13 | Popular among middle and high schoolers |
| <i>Produced by others</i> | | |
| <i>option booklets and university prospectuses</i> | Y9-Y13 | Popular among high schoolers |
| <i>past examination papers</i> | Y6-Y8 | Two instances |
| <i>teacher-produced booklets</i> | Y8 | One instance |
| <i>information sheets</i> | Y8-Y11 | All but one of the many instances were among middle schoolers |
| <i>worksheets</i> | Y6 | One instance |
| <i>work of older siblings</i> | Y6 | One instance |
| Use of acknowledged information sources | | |
| <i>Paper sources</i> | | |
| <i>books within and purchased for home collections</i> | R-Y13 | Popular in all phases |
| <i>newspapers</i> | Y7-Y13 | Several instances among middle and high schoolers |
| <i>magazines</i> | Y3-Y13 | All but one of the many instances were among middle and high schoolers |
| <i>posters</i> | Y4 | One instance |
| <i>brochures, leaflets and catalogues</i> | Y2-Y11 | Several instances in all phases |
| <i>sheet music</i> | Y12 | Two instances |
| <i>Technology-based sources</i> | | |
| <i>computers</i> | | |
| <i>CD-ROM</i> | Y1-Y12 | Popular in all phases |
| <i>Internet</i> | Y2-Y13 | Especially popular among middle and high schoolers |
| <i>community information points</i> | Y8 | One instance |
| <i>television and video</i> | R-Y13 | Especially popular among first and middle schoolers |
| <i>Teletext</i> | Y2-Y9 | Several instances in all phases |
| <i>radio</i> | Y3-Y12 | Two instances |
| Use of organisations | | |
| <i>School</i> | | |
| <i>books found in the classroom</i> | Y4-Y8 | All but two of the many instances were among middle schoolers |
| <i>allocated textbooks</i> | Y8-Y13 | All but two of the many instances were among high schoolers |
| <i>teachers' personal books</i> | Y10 | One instance |

| | | |
|---|----------|--|
| <i>departmental libraries</i> | Y11-Y13 | Popular among high schoolers |
| <i>school libraries</i> | Y2-Y13 | Especially popular among high schoolers |
| <i>Public libraries</i> | Y2-Y13 | Especially popular among first and middle schoolers |
| <i>Museums</i> | Y4 | Two instances |
| <i>Tourist Information Centres</i> | Y6-Y8 | Several instances |
| <i>Miscellaneous bodies</i> | Y7-Y9 | All but one of the several instances were among middle schoolers |
| <i>Parental workplaces</i> | Y4 - Y11 | Two instances |
| Membership of mail-based special interest clubs | Y8 | One instance |
| Use of other people | R-Y13 | Popular in all phases |

3 THE “HOW” OF INFORMATION-SEEKING: THE DETAIL OF ACTUAL INTERACTIONS WITH SOURCES, RESOURCES AND ORGANISATIONS

3.1 Books

3.1.1 Techniques for determining relevance

Where books in the home and already known to the youngsters were used, informants were often able to go immediately to a certain title they knew to be of relevance. In other situations, they had to select materials after adjudicating on the merits of particular items in a collection. This is somewhat akin to the process of “differentiating” described by Ellis (1989: 178). In the home youngsters might be helped to determine the relevance of certain texts by those to whom they belonged (Ruth, Y6/C-2/II/31, Harvey, Y6/C-2/II/33, Greg, Y9/B-3/II/76). Where a book was new to the youngster and no assistance was provided by others, a decision on its relevance was usually made on the basis of its title and, where the informant identified a close match between the title and the subject of the need, especially if the actual words were the same, the book was almost always accepted without further scrutiny. Harrison’s (Y12/B-3/II/85) explanation was typical: “You can tell from the titles of the books what sort of information they’re going to have in.” Frank⁵ (Y5-Y6/D-2/FG/3), too, indicated how he would “have a quick scan of the shelves” in the appropriate section of his public library for books with suitable titles. Many youngsters within the studies of Kobasigawa (1983: 268), Moore (1988) and Moore and St. George (1991: 166) also based their decisions regarding relevance entirely on the titles of the books they encountered. Nevertheless, Whitley Bay youngsters reported other approaches, too. Dennis (Y8/C-2/II/40) would consult the contents list before deciding whether or not a particular book was likely to be useful. Duncan (Y12/B-3/II/84) pursued a similar course of action, considering that “the list of chapters at the front gives a good guide” as to a volume’s relevance. Some cursorily examined the book’s main text, Eric (Y8/C-2/II/41) speaking of “having a flick through and if I saw anything I’d just get it out”, whilst Greg (Y9/B-3/II/76) reported, “I speed read the beginning bit of it to see if there’s anything there.” A comparable approach was taken by some of the youngsters in Moore’s (1995: 16) study.

A strategy that proved unique within the sample was employed by Kay (Y8/C-2/II/44) in the public library. She scanned the titles of the books listed in the classified catalogue, noted the details of those she believed relevant and attempted to find them on the shelves. The individuality of Kay’s method lay in the fact

that her initial decisions on relevance were made not at the shelves but at the catalogue, without even seeing the books in question.

3.1.2 Techniques for finding specific information

- a) **Sequential access**, in which the informant started at the beginning and turned the book's pages individually. This approach was most common in circumstances where the youngster was broadly interested in all the contents of a book and was keen to read it cover-to-cover, usually for leisure purposes. Sequential access methods were also employed, however, by those seeking more precise information contained *somewhere* within a book. This behaviour was exhibited by youngsters of all phases (June, Y1/C-1/II/57, Gavin, Y1/G-1/II/24, Francesca, Y2/G-1/II/5, Austin, Y3/G-1/II/23, Naomi, Y5/D-2/II/12, Eric, Y8/C-2/II/41, Scarlett, Y10/B-3/II/80). Naomi explained, "I just look through... to see if I can find anything." Gavin drew particular attention to the importance of scanning when accessing material sequentially. In a specific situation he had "flicked through the book and looked on every page for the word, 'Jupiter' [the subject of his need], so I knew that the information in that part would be about Jupiter". Although she tended to read books from the beginning, Francesca would use the index as a standby tool to be consulted if, having read all of a book, she had been unable to find information on a desired subject. Likewise, Eric would go to the index only after flicking through the pages of a book for appropriate pictures that would provide cues to relevant text. The Children's Literature Research Centre (1996: 218) has observed the popularity of behaviour of this type, especially in boys. Among teenagers, Scarlett practised sequential access, although she was aware that it was ill-advised, and again relied on the index as a standby aid. She explained, "I normally flick through the whole book before I go to the index. I know you're not supposed to and it just wastes time. So once I've read through pretty much the whole book and I haven't found it [suitable material], I go, 'Oh, I'll look in the back'."

Whilst the behaviour of all the youngsters reported is essentially similar, the sophistication of the materials they were using varied markedly. Many of the younger children were consulting slim volumes, whilst the older informants were using more substantial books. In the latter situation, the approach was particularly inefficient. There was no guarantee, either, that information on the subject of interest even existed within the book unless this had been ascertained previously. The tendency of youngsters to resort to sequential behaviour is also documented in research by Wray and Lewis (1995: 5), although Cole and Gardner (1979: 175) and Pitts (1994: 250) describe even more dubious and haphazard methods among young people they have observed.

- b) **Selective access**, in which the youngster attempted to find the relevant information within a volume without scrutinising each page until the desired material was reached. This was usually achieved via use of one of two different types of "finding aids":

- *contents lists*, favoured by Alice³ (Y3-Y4/A-1/FG/12), Corey³ (Y3-Y4/A-1/FG/12), Curtis (Y3/A-1/II/115), Sasha (Y4/A-1/II/117), Wes (Y4/C-1/II/51), Wendy (Y4/C-1/II/53), Barbara (Y4/G-1/II/22), Larry (Y5/C-2/II/26), Jeremy (Y5/C-2/II/28), Christine (Y5/C-2/II/47), Vanessa (Y5/D-2/II/14), Madeleine (Y5/D-2/II/15), Nina (Y5/D-2/II/17), Pauline (Y6/C-2/II/30), Ruth (Y6/C-2/II/31), Cathy (Y6/C-2/II/32), Harvey (Y6/C-2/II/33), Candice (Y6/D-2/II/16), Anneka (Y6/D-2/II/19), Bill (Y7/C-2/II/39), Rick⁷ (Y7-Y8/D-2/FG/10), Shane⁷ (Y7-Y8/D-2/FG/10), Kevin (Y7/D-2/II/95), Dennis (Y8/C-

2/II/40), Lionel (Y8/D-2/II/102), Louis (Y8/D-2/II/103), Rosemary (Y8/D-2/II/98), Kirsty (Y8/D-2/II/99), Jeff (Y9/B-3/II/77), Lesley (Y9/B-3/II/78) and Zoe (Y9/B-3/II/79);

- *indexes*, preferred by Victor² (R-Y2/A-1/FG/11), Barry (Y2/A-1/II/112), Meredith (Y2/C-1/II/56), Maria³ (Y3-Y4/A-1/FG/12), Fiona⁴ (Y3-Y4/A-1/FG/12), Will⁴ (Y3-Y4/A-1/FG/12), Dominic (Y4/A-1/II/116), Paula (Y4/A-1/II/118), Kylie⁴ (Y3-Y4/C-1/FG/6), Russell⁴ (Y3-Y4/C-1/FG/6), Joan (Y4/C-1/II/52), Lisa⁵ (Y5-Y6/C-2/FG/4), Tim⁵ (Y5-Y6/C-2/FG/4), Nigel (Y5/C-2/II/29), Jim (Y5/D-2/II/100), Isaac (Y5/D-2/II/101), Piers (Y5/D-2/II/104), Alistair (Y5/D-2/II/105), Malcolm⁶ (Y5-Y6/C-2/FG/4), Sandra⁶ (Y5-Y6/C-2/FG/4), Ruth (Y6/C-2/II/31), Ewan (Y6/C-2/II/42), Hilary (Y6/D-2/II/18), Helena (Y6/D-2/II/20), Suzanne (Y6/D-2/II/21), May (Y7/C-2/II/34), Maureen (Y7/C-2/II/35), Clint (Y7/C-2/II/38), Cameron (Y7/C-2/II/43), Douglas (Y7/D-2/II/93), Dirk (Y7/D-2/II/94), Kieron (Y7/D-2/II/96), Andrea (Y7/D-2/II/97), Louise (Y8/C-2/II/45), Tanya (Y8/C-2/II/46), Francis⁸ (Y7-Y8/D-2/FG/10), Norman (Y8/D-2/II/106), Greg (Y9/B-3/II/76), Glynis (Y10/B-3/II/81), Mandy (Y11/B-3/II/69), Jean (Y11/B-3/II/70), Duncan (Y12/B-3/II/84) and Harrison (Y12/B-3/II/85).

Contents lists and indexes within books can thus be said to fulfil two roles. Firstly, they allow the user to ascertain whether or not a work is relevant to his or her needs and, secondly they enable an inquirer to find specific information within a volume.

The researcher had expected younger children to favour contents lists for the latter purpose, chiefly as a result of their ease of use, particularly because of their brevity and the lack of demands they make on alphabetical ordering skills. Older informants were thought likely to prefer indexes on account of their detail. Glynis (Y10/B-3/II/81) did indeed state that, when younger, she had used contents lists to retrieve information from books but she now found indexes more helpful owing to their greater specificity. Nevertheless, much of the data does not confirm the investigator's preliminary beliefs. Many middle schoolers and even some high schoolers used contents lists rather than indexes.

All the informants listed above favoured one or other of the two types of finding aid and employed it repeatedly, regardless of the text involved, although some explained that they would readily exploit the other tool if their efforts with their first choice aid had been unsuccessful (Alice³, Y3-Y4/A-1/FG/12, Jeremy, Y5/C-2/II/28, Madeleine, Y5/D-2/II/15, Pauline, Y6/C-2/II/30, Cathy, Y6/C-2/II/32, Harvey, Y6/C-2/II/33, Helena, Y6/D-2/II/20, Suzanne, Y6/D-2/II/21, Kirsty, Y8/D-2/II/99). Harvey, whilst favouring one tool, was aware of its limitations. He stated his preference for contents lists because they deal "with whole groups" but acknowledged that information on a chosen subject might be found more easily via the index, "which is generally a lot bigger". Others were reluctant to use under any circumstances the remaining aid available to them. Corey³ (Y3-Y4/A-1/FG/12) always consulted the contents list and, if unable to find a keyword that matched his subject of interest, he would "just flick through the book". He was deterred by the length of indexes and admitted, "I don't like reading long things." A contrasting approach was taken by Lynne (Y3/C-1/II/49), who would initially turn to the contents list in order to find a chapter of interest. She would then go to the index to locate the more specific pages where the desired information would be provided. Lynne made no attempt to explain why she would not simply go to the index first. Ruth (Y6/C-2/II/31) recognised that even though the contents list, which she favoured, was a tool for selective access, some sequential action might also be needed. Recounting how she had found a chapter in a book on the Tudors using the contents lists, she indicated that, within this piece, she had had

“to turn the pages and look through the section about the Tudors” to find the particular information she wanted. Candice (Y6/D-2/II/16) and Dennis (Y8/C-2/II/40) reported similar behaviour, only the latter looked for cues from pictures within the chapter.

When using books with material demarcated chronologically or with sections arranged alphabetically, some youngsters found it unnecessary to use either a contents list or an index. Referring to works covering long periods of history, Pauline (Y6/C-2/II/30) drew attention to the fact that some “have dates on the top” of each page and information about a certain event can readily be located if the user knows the date of the event in question. Consulting such a book when looking for material on the Spanish Armada, Pauline could find the information easily by going to the section devoted to the year in which the Armada set sail. A more approximate approach was employed by Barry (Y2/A-1/II/112) when examining a book on “houses through the ages”. Seeking text devoted to “Victorian homes”, he “turned back to nearly the beginning, because the Victorians lived a long time ago”. In the same way, when using a book about the countries of the world, Joan (Y4/C-1/II/52) was easily able to find the section on New Zealand because the countries were arranged alphabetically. Despite opting not to use an index when consulting subject books, Naomi (Y5/D-2/II/12) expressed a particular liking for books organised alphabetically, such as encyclopedias, because of the directness they offered in accessing information. “You just go straight to what you want,” she indicated.

3.1.2.1 Variations in approaches of single individuals

Some youngsters did not use a particular method in every situation where they required information from a book. Rather, their behaviour was dependent on the circumstances, and might be understood to be context-sensitive. Five variations were identified:

- a) **sequential/selective access variations based on topic of need.** Harvey (Y6/C-2/II/33) indicated that, when his need was general and he was broadly interested in a book’s subject, he would read through the whole volume but, when using the same item subsequently “to know about something in particular”, he would exploit a tool for selective access, in his case the contents list;
- b) **sequential/selective access variations based on book thickness.** The behaviour of many was determined by a book’s length. Sasha (Y4/A-1/II/117) found that “for thin books I usually just have a look through. I just look at the contents list for thick books”. Wendy (Y4/C-1/II/53) took the same line. Comparable action was reported by older participants. Douglas (Y7/D-2/II/93) commented, “Sometimes I look at the index - if it’s a thick book probably - but usually I just check through the book.” Dirk (Y7/D-2/II/94) and Andrea (Y7/D-2/II/97) found information in a similar way, Dirk explaining, “If it’s a thin book, I have a flick through to find the rough page.” Otherwise he would use the index but not the contents page. In relation to the latter, he argued, “They just give you a rough idea of what’s in the book so I don’t really use them”;
- c) **sequential/selective access variations based on mood.** Christine (Y5/C-2/II/47) usually consulted the contents list but admitted, “Sometimes I can’t be bothered to read all the writing so I have a flick through and look at the pictures. I use the pictures to tell me what’s happening. If I find an interesting picture I’ll read the writing that goes with it”;
- d) **contents list/index variations based on topic of need.** Sally²’s (R-Y2/A-1/FG/11) relative use of the two finding aids varied depending on whether she perceived her subject to be a major topic or simply an aspect of a larger area. She explained, “If it’s [her topic of interest] part of a thing... I would go to the index,

otherwise I usually go to the contents.” Damien⁴ (Y3-Y4/A-1/FG/12) made a similar comment and referred specifically to his recent information-seeking on snakes: “I used the contents because I wasn’t really doing about one type of snake. I was just doing about any type of snakes and in the index you usually find out about loads of snakes.” Zack (Y5/C-2/II/27) agreed: “It depends how specific you want to be. If you want to find something really specific about it [the subject of the need] you need to go to the index.” Larry (Y5/C-2/II/26) expressed the same argument. Although he preferred the contents list, he would use the index if he sought “more detailed” information. Among teenagers, Emily (Y10/B-3/II/82) was one of those who did not always use the same tool. She explained her reasoning, “The index is more... for when you’re looking for a certain word. If you go to the contents page it’s better for general things”;

- e) **contents list/index variations based on mood.** Anneka (Y6/D-2/II/19) was happiest using the contents page even though she thought it provided only an approximate indication of the position within a book of text relating to the subject of interest. If, however, she was not inclined to read through a section and wanted “to see exactly” where the desired information was located she would use the index.

3.1.2.2 *Rationale for use of favourite finding aids*

Where informants indicated a predisposition towards a specific finding aid, their reasons were investigated. Figure G¹ examines each tool in turn, stating the justifications of the youngsters who preferred it and reproducing the words that they used in their explanations. Some spoke in terms of the isolated characteristics of their chosen aid, whilst others compared it with the alternative available. Many referred to certain subjects in relation to which they had sought or might seek information.

FIGURE G¹: YOUNGSTERS’ REASONS FOR FAVOURING CONTENTS LISTS OR INDEXES

| Tool | Justification | Informant’s explanation of preference |
|---------------|--|--|
| Contents list | Ease of use (resulting from, for example, large type size and single sequence) | <p>“It’s the easiest way, I think. It’s just got all the topics and the page numbers in one list” (Curtis, Y3/A-1/II/115)</p> <p>“I prefer to look in the contents list because sometimes it’s quite hard to find things in the index” (Wendy, Y4/C-1/II/53)</p> <p>“It’s easier to work out where your topic is going to come in the contents list than having to read through the index” (Jeremy, Y5/C-2/II/28)</p> <p>“The contents is usually done in a bit bigger print and there’s usually only one list but in the index there’s usually quite a few lists on a page and it’s usually done in very small print. I hate having to look at lots of lists in very small print” (Christine, Y5/C-2/II/47)</p> <p>“It’s easier to find things because you don’t have to look in two lists. You only have to look in one” (Nina, Y5/D-2/II/17)</p> <p>“It’s easier to use because it groups things together and you don’t have to look through about two pages as you do in an index” (Pauline, Y6/D-2/II/30)</p> <p>“All the titles are nice and big” (Kirsty, Y8/D-2/II/99)</p> |

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| Brevity | "Indexes can be boring. I don't like reading long things" (Corey ³ , Y3-Y4/A-1/FG/12) |
| Comprehensive coverage of book contents | "It tells you where <i>everything</i> is. You know if" your chosen topic "is there" (Jeff, Y9/B-3/II/77) |
| Greater emphasis on breadth | <p>"I find contents lists more helpful because generally I look for broad groups first" (Harvey, Y6/C-2/II/33)</p> <p>"I like contents lists 'cos they've got, like, the main subjects in the book" (Bill, Y7/C-2/II/39)</p> <p>"I prefer contents because they're really broad. You can just look and see all the main titles there" (Rosemary, Y8/D-2/II/98)</p> |
| Fewer page references | "There isn't as many things that you have to look at. It just gives you one page that you turn to" (Wes, Y4/C-1/II/51) |
| References to larger sections | "It might give you like a whole section - three pages or whatever - on the Egyptians [her topic of interest]" (Alice ³ , Y3-Y4/A-1/FG/12) |
| More "natural" location within book | <p>"It's at the front" (Sasha, Y4/A-1/II/117, Cathy, Y6/C-2/II/32, Rick⁷, Y7-Y8/D-2/FG/10, Lionel, Y8/D-2/II/102, Jeff, Y9/B-3/II/77, Lesley, Y9/B-3/II/78, Zoe, Y9/B-3/II/79)</p> <p>"It's nearest to the front" (Kirsty, Y8/D-2/II/99)</p> |
| Intuitive expectation | <p>"In probably every book there's the contents at the front" (Jeremy, Y5/C-2/II/28)</p> <p>"Not all books have indexes" (Kevin, Y7/D-2/II/95)</p> |
| Index | <p>Ease of use (in terms of predictable sequencing and location of terms)</p> <p>"It's got everything in alphabetical order" (Barry, Y2/A-1/II/112)</p> <p>"Things are normally in alphabetical order but in the contents list the thing you're looking for could be anywhere" (Tim⁵, Y5-Y6/C-2/FG/4)</p> <p>"Indexes are good because you can just say, 'Right, it starts with an A', so it's all in one place type thing. You don't have to search through the whole list" (Ruth, Y6/C-2/II/31)</p> <p>"Everything's in alphabetical order so it's easy to find what you're looking for" (Ewan, Y6/C-2/II/42)</p> <p>"I know my alphabet really well so it's just easier" (Hilary, Y6/D-2/II/18)</p> <p>"Indexes are in alphabetical order so it's easier to find" your chosen topic (Maureen, Y7/C-2/II/35)</p> |
| | <p>More references to relevant content</p> <p>"There's more stuff in it. If you're looking up 'modern houses', it might say page fourteen, twenty-seven and twenty-eight. It tells you every page it's mentioned in" (Barry, Y2/A-1/II/112)</p> <p>"It gives you more pages about it [the subject of the need]" (Joan, Y4/C-1/II/52)</p> <p>"The contents might give you like 'Hajj' and might give you a page but the index'll give you 'Hajj' and say page twelve <i>and</i> twenty-four" (Clint, Y7/C-2/II/38)</p> <p>"Sometimes things are dotted around the book and the contents</p> |

| | |
|--|---|
| | <p>doesn't tell you that. The index does" (Cameron, Y7/C-2/II/43)</p> <p>Indexes "don't just give one page with it all on" (Kieron, Y7/D-2/II/96)</p> |
| More direct access to material | <p>"Indexes really narrow things down so you can go straight to what you want. Contents lists usually just say 'ancient world', 'modern world', things like that but, if you use the index, you can look under 'E' for 'Egypt'/'Egyptians' and you go straight to the page" (Piers, Y5/D-2/II/104)</p> |
| More coverage of individual topics and their aspects | <p>"The contents only gives you the pages that the book's got but in the index it gives you like 'Roman sculpture, page 65'" (Maria³, Y3-Y4/A-1/FG/12)</p> <p>"Indexes give us more information 'cos the contents just gives us a few things, like the main things, in order" (Paula, Y4/A-1/II/118)</p> <p>"It tells you the types of things, like sorts of dogs, like spaniels" (Kylie⁴, Y3-Y4/C-1/FG/6)</p> <p>"It tells you where <i>all</i> the things are" (Russell⁴, Y3-Y4/C-1/FG/6)</p> <p>"You've got more variety to choose from" (Lisa⁵, Y5-Y6/C-2/FG/4)</p> <p>"The contents only gives you a little title and the index tells you what's <i>really</i> in the book" (Alistair, Y5/D-2/II/105)</p> <p>"In the contents it just gives you loads of groups of things and in the index it has individual things" (Malcolm⁶, Y5-Y6/C-2/FG/4)</p> <p>"In the contents it might say, 'animals' but in the index it might say... 'animals' and underneath it might say 'reptiles' and stuff like that" (Sandra⁶, Y5-Y6/C-2/FG/4)</p> <p>"In the contents it's just got the types of subject. For animals, it might have just, like, 'domestic' but in the index it's got every animal it's got in the book" (Helena, Y6/D-2/II/20)</p> <p>"The contents list just has the title - the title that's on the page, normally - and that's not as much help as the index that tells you exactly what's in the book" (Suzanne, Y6/D-2/II/21)</p> <p>"Indexes have more lists with different bits of the French Revolution [his topic of interest] on" (Kieron, Y7/D-2/II/96)</p> <p>"The index has got... specific words and the contents list has just got... a phrase" (Andrea, Y7/D-2/II/97)</p> <p>Contents pages "just list what's in the book in order but you can go to a specific thing in the index" (Tanya, Y8/C-2/II/46)</p> <p>"Usually the contents list gives like 'the human body', 'the solar system' and 'wildlife'. Things like that. It doesn't give you specific things that you're looking for so I go to the index" (Francis⁸, Y7-Y8/D-2/FG/10)</p> <p>"It's more detailed. You can look up specifics. If the book does cover homeopathy [his topic of interest] it'll be in the index" (Norman, Y8/D-2/II/106)</p> |

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| | "You can look for specific words, whereas at the front you just get a chapter list. It's much broader" (Jean, Y11/B-3/II/70) |
| Inclusion of derivative terms | "There might be alternatives [to homeopathy - the subject of interest] like 'homeopathic'" (Norman, Y8/D-2/II/106) |
| References to larger sections | "It tells you bigger things about them [the subjects of your needs]" (Victor ² , R-Y2/A-1/FG/11) |
| Greater precision in page references | "Contents lists can be misleading. They might imply that there's a whole chapter on maggots [a topic of possible interest] but it's not as accurate as that. You might seem to get a whole twenty pages and you only actually have two pages on maggots" (Harrison, Y12/B-3/II/85) |
| Intuitive expectation | "Most books I've seen have an index but some don't always have a contents" (Kieron, Y7/D-2/II/96) |
| More pleasurable | "Indexes are often longer than contents lists but that suits me 'cos I like reading. In fact, indexes are more fun to read" (Maria ³ , Y3-Y4/A-1/FG/12) |

The table above addresses the *specific* reasons put forward by youngsters. In addition, a number of more superficial justifications were made. A few participants indicated that they preferred indexes because they either offered "more information" (Fiona⁴, Y3-Y4/A-1/FG/12, Will⁴, Y3-Y4/A-1/FG/12, Jim, Y5/D-2/II/100) or were "more detailed" (Greg, Y9/B-3/II/76), although they did not elaborate. Most of the informants whose words are shown in Figure G¹ explained their preference for either contents lists or indexes with a single reason but the behaviour of a few, such as Kieron (Y7/D-2/II/96), was based on multiple perceived benefits of the chosen tool. Several arguments, like those of Corey³ (Y3-Y4/A-1/FG/12) and Wendy (Y4/C-1/II/53), were quite negative. They employed contents lists not because of their intrinsic merits but because they disliked indexes. Some such reservations could be overcome through greater skill development. Middle schoolers Nina (Y5/D-2/II/17) and Christine (Y5/C-2/II/47) described the tedium of searching through multiple sequences to locate a given term in an index. Nina explained the problem in relation to the topic of the Egyptians: "If you are in the index, you have to look first for the 'E' bit and then when you've found it you look again for Egyptians." This issue arose because both youngsters assumed that lists must be read from the beginning and were unable to locate the "E" sequence without checking through lists for the previous letters. Corey³ (Y3-Y4/A-1/FG/12) was under a similar misapprehension. Over time and with greater practice, however, all three informants might overcome this hurdle. Heather (1984a: 7), too, has recognised a tendency among primary schoolers to search through all the words beginning with a given letter to find a specific term. In the same way, Edmonds, Moore and Balcom (1990: 31) report how they discovered that youngsters using a card catalogue examined each card in an attempt to locate that which they required, and Eaton (1991: 85) considers it typical of children operating at Piaget's concrete operational stage to have problems using any sequence without starting at the beginning. Generally, where informants criticised the finding aids that they preferred not to use, their comments related to their limited usefulness as information retrieval devices in the case of contents lists and their lack of ease of use in the case of indexes. The problems youngsters experience in exploiting complex indexes have been well documented. Heather (1984b: 218) found that many of the primary school pupils she

watched were “overwhelmed” by indexes that included subsequences, and the nine- to ten-year-olds observed by Mallett (1992: 56) needed adult assistance.

The reasons indicated by the youngsters for their preferences were wide-ranging, addressing both process (such as opinions surrounding ease of use) and product (like the belief that indexes provide more references to relevant content), and there were also justifications that do not fit easily into either category. Some, including Maria’s argument that she consulted indexes because she found them pleasurable to use, were only peripheral to the information-seeking process. Harvey (Y6/C-2/II/33), Bill (Y7/C-2/II/39) and Rosemary (Y8/D-2/II/98) all appreciated the broadness of the groups indicated in contents lists, although this, in itself, is hardly a significant advantage over indexes. It was simply that one of the characteristics of contents lists appealed to the youngsters’ own inclinations. Perhaps the most unexpected finding of the project in terms of contents lists and indexes lies in the tendency of some youngsters across all three school phases to prefer the former simply because they are located at the front of a book. This may reflect the fact that, from an early age, children are encouraged to read materials such as picture books and school reading books from front to back.

The same basic rationale for the use of contents lists was often offered by those who favoured indexes. In particular, each was considered “easier to use”, to provide access to larger sections within a book and to be more likely to be found within a volume than the alternative aid. On occasion, even the specific words employed by an informant to justify the use of a particular tool could be applied to the other. Jeff’s (Y9/B-3/II/77) argument that a contents list “tells you where *everything* is” in a book might be regarded as equally true of an index.

Some explanations were not entirely accurate factually and reflect misapprehensions. Victor² (R-Y2/A-1/FG/11) believed that, because the starting and finishing pages of information on a particular subject are stated in the index, the user is being directed to a larger section than is the case with a contents list. He was unaware that, through convention, contents lists indicate only the first page of a relevant section, all of which may provide suitable information. In the same way, Clint (Y7/C-2/II/38) assumed that because multiple page references may be provided for an entry in an index, the reader is again being directed to more information. Whilst such errors are understandable, Kieron’s (Y7/D-2/II/96) belief that books with indexes may not necessarily include contents lists is more surprising, especially given the age of the informant.

Duncan (Y12/B-3/II/84) was unique within the sample in believing contents lists and indexes to be equally useful but in different circumstances. The former, he maintained, were valuable in helping the user to determine broadly the relevance of the text in relation to his or her need, whilst the latter was a more dedicated information retrieval tool.

3.1.3 General cognitive problems

Despite the fact that books were widely consulted, there were informants in all phases who found subject works hard to use and tried to avoid them. Often these difficulties emerged with unfamiliar books, such as those from the public library, those provided by adults at home or those borrowed from school, rather than with their own books at home that were perhaps better suited to the informant’s cognitive ability and which they knew well. For several, “information density” was a grave problem. Wendy (Y4/C-1/II/53), who preferred to ask people than to read books, felt that in texts from the public library “there’s sometimes so many things crammed into one” and found herself navigating via “the little captions”. The problems of understanding complex subject

texts were highlighted by Glynis (Y10/B-3/II/81), who drew attention to her preference for "ones aimed at younger children 'cos they've got nice big print and pictures so they're easy to understand". She continued,

"I hate it when you've got paragraphs and paragraphs of tiny print. I just can't be bothered with it. Sometimes this small print goes on for pages and pages and I have problems reading through just one paragraph. Usually I've forgotten what was on line one when I'm on line four or whatever. I've just completely forgotten it."

It is not surprising, therefore, that when Glynis needed help in understanding historical events in Ireland, she turned to her mother, rather than a subject book. For Wendy and Glynis, difficulties apparently arose simply from the amount of text. Similar problems to those experienced by the girls have been detected by Cole and Gardner (1979: 188) and Gross (1998: 142), the former noting how their research subjects struggled when working with books that were less concise and less "topic-orientated" than teacher-written sources, and Glynis's dislike of small print suggests that a problem which Davies (1985: 25) considers to be a major barrier in the infant school also troubles some much older pupils. Dirk (Y7/D-2/II/94), an intelligent boy for his age, likewise admitted to struggling when attempting to comprehend subject textbooks. This led him to develop a somewhat ambivalent attitude towards encyclopedias for young children, which he had used when tackling a Geography project on volcanoes. He indicated that "they didn't have much detail in but they were easy to understand".

3.2 Electronic materials

3.2.1 CD-ROM software

Two methods for exploiting CD-ROM packages were used:

- a) **keyword searching.** The most popular search technique involved the entry of a keyword that represented the subject on which inquirers were seeking information. Sasha (Y4/A-1/II/117), Joan (Y4/C-1/II/52), Wendy (Y4/C-1/II/53), Madeleine (Y5/D-2/II/15), Helena (Y6/D-2/II/20), Bill (Y7/C-2/II/39), Shane⁷ (Y7-Y8/D-2/FG/10) Dirk (Y7/D-2/II/94), Andrea (Y7/D-2/II/97), Neville⁸ (Y7-Y8/D-2/FG/10), Lionel (Y8/D-2/II/102), Greg (Y9/B-3/II/76), Jeff (Y9/B-3/II/77), Lesley (Y9/B-3/II/78) and Zoe (Y9/B-3/II/79) all took this approach. Informants in all phases searched by keyword. According to Joan, "You type a word in, it brings it up on the screen and you can print it out so it's all very handy." Lesley, some five years older, considered this method the simplest and most effective: "You just type something in and get something out." Most searched under a single word or phrase, although some entered more. Looking for information on the planets of the solar system, Neville submitted two terms, "space" and "planets", and Bill, searching for material on the Muslim pilgrimage, used "Hajj" and "Islam". Wanting to know about domestic life during the Second World War, Jeff typed in "Home Front" and "women at war". The latter had been the title of a chapter of a book he had read on the subject. Whilst most youngsters generally inputted the search word themselves, Helena (Y6/D-2/II/20) indicated that her favoured approach varied from one subject to another. Where she considered the name of a topic difficult to spell, she used "the big list, where you just click on what you want". In these circumstances it was easier for Helena to employ a strategy based on recognition than to type in the term correctly herself. Wendy (Y4/C-1/II/53) used the recognition-based facility only "if I got the word wrong and it comes up with a list of different things that you could be wanting that have a spelling something like that";

b) **use of broad headings.** A far less popular technique involved convergence on information about a particular topic initially through the selection of a broader subject category. This method was employed in two situations, either when the subject of the need was itself broad, or when the software was new to the youngster and he or she wanted to explore it. In the latter scenario, the user was hardly purposely seeking information. Hilary (Y6/D-2/II/18) exploited CD-ROM software to find out about animals and, after browsing via the broad headings offered, she used a keyword in a more focused search to find information about particular creatures. Another compound approach was employed, albeit in a slightly different context, by Ian⁴ (Y3-Y4/G-1/FG/2), when searching for information on outer space. Using an unfamiliar CD-ROM package, he first located information devoted to “science and technology”, before entering his more specific topic of interest using a “text find” facility.

3.2.2 The Internet

In their efforts to find information, youngsters employed two techniques to access sites that they considered might be helpful - use of search engines and direct access to a predetermined site:

a) **use of search engines.** This approach was usually taken by youngsters unaware of the names or addresses of sites that could provide information on their desired subjects. Generally, the situations involved circumstances in which material had to be found for homework or where a new interest had emerged in a subject hitherto unfamiliar to the informant. In each case youngsters considered that the use of a search engine was the only option available to them. As Duncan (Y12/B-3/II/84), looking for information for an assignment on the responsiveness of maggots to light, admitted, “I used a search engine because I didn’t know much about maggot sites.” The search engines employed included:

- **“Yahoo!”** (Kevin, Y7/D-2/II/95, Kieron, Y7/D-2/II/96, Dennis, Y8/C-2/II/40, Francis⁸, Y7-Y8/D-2/FG/10, Neville⁸, Y7-Y8/D-2/FG/10, Norman, Y8/D-2/II/106, Greg, Y9/B-3/II/76, Ross, Y10/B-3/II/72, Adrian, Y10/B-3/II/73, Julia¹¹, Y9-Y11/B-3/FG/8, Petra¹¹, Y9-Y11/B-3/FG/8, Mandy, Y11/B-3/II/69, Toby, Y11/B-3/II/87, Gareth¹², Y12-Y13/B-3/FG/9, Gus, Y12/B-3/II/65, Duncan, Y12/B-3/II/84, Tessa, Y13/B-3/II/75, Michelle, Y13/B-3/II/89);
- **“Alta Vista”** (Dennis, Y8/C-2/II/40, Eric, Y8/C-2/II/41, Benny⁹, Y9-Y11/B-3/FG/8, Zoe, Y9/B-3/II/79, Toby, Y11/B-3/II/87, Joy, Y12/B-3/II/67, Duncan, Y12/B-3/II/84, Melvyn¹³, Y12-Y13/B-3/FG/9, Michelle, Y13/B-3/II/89, Liana, Y13/B-3/II/90);
- **“Ask Jeeves”** (Curtis, Y3/A-1/II/115, Piers, Y5/D-2/II/104, Rick⁷, Y7-Y8/D-2/FG/10, Shane⁷, Y7-Y8/D-2/FG/10, Dirk, Y7/D-2/II/94, Kieron, Y7/D-2/II/96, Eric, Y8/C-2/II/41, Francis⁸, Y7-Y8/D-2/FG/10, Neville⁸, Y7-Y8/D-2/FG/10);
- **“Lycos”** (Kevin, Y7/D-2/II/95, Eric, Y8/C-2/II/41, Norman, Y8/D-2/II/106, Adrian, Y10/B-3/II/73, Mandy, Y11/B-3/II/69, Duncan, Y12/B-3/II/84);
- **“Excite”** (Kevin, Y7/D-2/II/95, Petra¹¹, Y9-Y11/B-3/FG/8);
- **“MSN”** (Francis⁸, Y7-Y8/D-2/FG/10);
- **“Hotbot”** (Gus, Y12/B-3/II/65);
- **“Bien”** (Joy, Y12/B-3/II/67);
- **“Infoseek”** (Bradley¹³, Y12-Y13/B-3/FG/9).

Some informants were uncertain of the search engine that they used (Victor², R-Y2/A-1/FG/11, Damien⁴, Y3-Y4/A-1/FG/12, Fiona⁴, Y3-Y4/A-1/FG/12, Will⁴, Y3-Y4/A-1/FG/12, Sasha, Y4/A-1/II/117, Alistair, Y5/D-2/II/105, Maureen, Y7/C-2/II/35, Kay, Y8/C-2/II/44, Jeff, Y9/B-3/II/77). This ignorance often resulted from situations in which the system had been instructed to access a particular search engine immediately after the starting up of the Web browser. Although she normally visited the "Alta Vista" site at school, Liana (Y13/B-3/II/90) was unsure of what she used at home. She admitted, "When I go into the Internet there's a search button that comes up straight away and I just click on that. I don't know what the actual one is."

Rationale for selections of specific search engines and criticisms

Many youngsters predominantly employed a certain search engine that they considered fulfilled their needs for much of the time. This is in keeping with the findings of Hirsh (1999: 1271, 1278), who notes that experienced Internet users have distinct preferences. Greg's (Y9/B-3/II/76) choice was "Yahoo!". "It's very reliable," he enthused. Some of the oldest informants, in the Sixth Form, also identified favourites, Gareth¹² (Y12-Y13/B-3/FG/9) indicating "Yahoo!" and Melvyn¹³ (Y12-Y13/B-3/FG/9) "Alta Vista". Others used two search engines in virtually equal measure. Toby (Y11/B-3/II/87) was unable to choose a favourite between "Yahoo!" and "Alta Vista". Some participants were inclined to try various search engines if they were initially unsuccessful, although, even here, most had a preferred order of use. Kevin (Y7/D-2/II/95) explained, "When I can't find anything if I've been looking on 'Lycos'... I go on 'Yahoo!'." Duncan (Y12/B-3/II/84) used "Yahoo!", "Lycos" and "Alta Vista" for information on maggots, admitting that, during the course of work for his assignment, he was willing to try several search engines until he had found what he considered to be "enough information".

The transfer to domestic situations of habits developed in school formed a significant theme. Dirk (Y7/D-2/II/94) exploited the "Ask Jeeves" site because he had grown accustomed to it at school, where teachers undertaking Internet work with pupils regularly asked them to use this search engine. The fact that exploitation of "Ask Jeeves" was much more common in out of school Internet use among pupils at School D-2 than youngsters in other schools suggests that users readily develop a reliance on a certain search engine after early experience of it in the academic environment. Guidance from others, including parents, also influenced many youngsters. Curtis's (Y3/A-1/II/115) use of "Ask Jeeves" began after a family friend had recommended it to his father, and Kevin (Y7/D-2/II/95) indicated that his father's shift to using "Excite", in preference to "Yahoo!", which he had formerly favoured, had alerted him to its value and he, too, was now inclined to rely on it. Mere convenience led to the use of some search engines, however. Adrian (Y10/B-3/II/73) did not consciously select a search engine. He stated simply that he was more inclined to use "Yahoo!" "cos I've got my e-mail set up with them".

Whereas Adrian's behaviour was the result of a peripheral factor, some informants indicated favouring one search engine after trying several. Melvyn¹³ (Y12-Y13/B-3/FG/9) described how his preferences had changed with experience. Originally a user of "Yahoo!", he had learnt of the existence of "Alta Vista", which he now considered "much better so I just go for that one". Ross (Y10/B-3/II/72) opted for "Yahoo!", saying it was, he thought, "better set out than the others. It's more clearer than 'Excite' and those. I don't think they're as clear and easy to read". Norman's (Y8/D-2/II/106) justification for his

inclination towards “Yahoo!”, rather than “Lycos”, was similar, as he indicated that he favoured “the set-out of it”, although he acknowledged using both. For these youngsters aesthetic and design considerations were clearly important. Neville⁸ (Y7-Y8/D-2/FG/10) preferred “Yahoo!” to “Ask Jeeves” but conceded the latter to be “good when you want to ask questions”, even though its question-generating technique was unnatural to him. “It’s a bit weird to use,” he asserted. Francis⁸ (Y7-Y8/D-2/FG/10) agreed and recalled that in many situations he had desired simply information about a particular topic, not answers to questions. The criticisms of Neville and Francis reaffirm the problems youngsters experience in formulating questions in the manner advocated by many experts in the teaching of Information Skills. Francis’s disillusionment with “Ask Jeeves” increased during a particular interaction in which he had wanted to know more about the film, “ET: the Extra-terrestrial”. None of the references retrieved dealt with the film. The youngster explained, “I was thinking about how the media have treated aliens and I typed in ‘ET: Extra-terrestrial’ and then it was going on about non-fiction and I was actually looking for the movie... and it just gave me ‘alien autopsies’ and things like that.” Believing that his time spent searching had been completely wasted, Francis also criticised the lack of directness offered by “Ask Jeeves”. He complained, “It just keeps on asking you questions until you get the answer you want *eventually*.” Francis acknowledged that his low opinion of “Ask Jeeves” was based on a limited number of opportunities he had had to use it. Others had formed equally negative attitudes on the basis of a single unsuccessful encounter. Shane⁷ (Y7-Y8/D-2/FG/10) had been unimpressed by “Ask Jeeves” when he had been unable to use it to learn what had happened in the episode of “EastEnders” which he had missed the previous night. Shane’s lack of success on this one occasion was etched in his memory and had helped shape his overall impression of the search engine.

Several older pupils perceived that certain search engines offered particular specialisms. Eric (Y8/C-2/II/41), for example, tended to use “different search engines to find different things”. Joy (Y12/B-3/II/67) concurred. Studying “A” Level French, she mainly employed “Alta Vista” when looking for foreign matter as she was impressed by its ability to search for material in different languages. In the same way, Bradley¹³ (Y12-Y13/B-3/FG/9) found “Infoseek” “good for educational material”.

Criticisms of search engines in general

The tendency of search engines to list dozens or even hundreds of sites after the entry of a keyword was reported surprisingly rarely. Nevertheless, one such occasion was described by Wes (Y4/C-1/II/51), whose use of a search engine to identify sites relating to the USA elicited “seven hundred and something” references. His father, with whom Wes was working, responded by narrowing the search and confining it to the White House. By this stage, however, Wes had spent so long working with the Internet that his father volunteered to take over ownership of the searching process. In contrast to the “site overload” experienced by Wes, Eric (Y8/C-2/II/41) reflected that rarely did a search engine present him with much relevant information. Often the sites listed by search engines were simply unavailable. He considered that too frequently the message, “This site cannot be found”, appeared when an attempt was made to visit it. Where a site was accessible, its content often failed to meet his expectations or, in Eric’s own words, “they’re just rubbish”. Melvyn¹³ (Y12-Y13/B-3/FG/9), too, had found that, when seeking information for school, many sites listed by search engines had been unhelpful. The user-unfriendliness of search engines generally was

highlighted by Jean (Y11/B-3/II/70), who was critical of the inconvenience when entry of a particular search term elicited the message, "No items found", and when either rearrangement of the terms or formulation of a new one was required. Mandy (Y11/B-3/II/69) recognised the problem of "false drops", explaining how entry of a keyword often led to the identification of sites "with the same word in but it's got nothing to do with what you want". Many youngsters' interactions with search engines involved little more than trial and error. Dirk's (Y7/D-2/II/94) attitude was typical: "You just type something in and see what comes up." Watson (1998: 1029) has highlighted the employment of similar tactics among her teenagers using the Internet. The lack of sophistication of Dirk's methods is considered by Graef (2000) to be typical of people in general. He identifies "a twenty-first century paradox" in which, whilst the world of information is expanding and becoming more complex, users' conceptual tools for dealing with it are simplified.

Keywords

Usually the entered search terms succinctly represented the matter of interest, although a few inquirers struggled to encapsulate their topic in a single word and employed natural language. Michelle (Y13/B-3/II/89), for example, entered "language change over time", which was taken directly from her assignment brief. Chen (1993: 36, 38), Solomon (1993: 259), Wallace and Kupperman (1997: 22) and Gross (2000: 12) have also observed this tendency, and Marchionini (1989a: 61) has found it to be highly characteristic of younger users of electronic sources. Fidel et al (1999: 27) describe the "highly reactive" approaches of their youngsters, and a similar phrase may be applied to the Whitley Bay Internet users. Many simply inputted an initial keyword and their subsequent actions were determined by the way in which the computer responded. A comparable lack of preliminary thought has been observed by McNicholas and Todd (1996), Lyons et al (1997: 16) and Schacter, Chung and Dorr (1998: 847, 848). It must be remembered, however, that often the Whitley Bay users were searching for information on subjects that were familiar to them only through their school studies and their domain knowledge was limited.

As with CD-ROM searching, only one term was normally used, although Ross (Y10/B-3/II/72) entered a range when in pursuit of information on roller coasters. They included "roller coasters", "theme parks" and the names of resorts, such as Alton Towers and Busch Gardens. This is illustrative of how some youngsters searching on familiar subjects used their prior knowledge to determine keywords. A search engine was sometimes employed on various occasions whilst preparing a prolonged assignment, and different terms were used depending on the stage of the work. Dennis (Y8/C-2/II/40) had used a search engine several times whilst producing an ongoing biography of Jesus. At the time of his interviewing, he was still writing it and just the previous evening had entered, "Jesus's disciples".

Methods for selecting sites

After inputting a term into a search engine, inquirers were usually presented with a list of sites that might be appropriate to their needs. Four types of behaviour followed:

- no selection - all sites appearing on the list of results were visited. When describing particular information encounters, some youngsters obtained a small number of hits, and each site could be visited without an excessive amount of time being spent. Eric (Y8/C-2/II/41) investigated all "five or six" of

those providing information on Rothbury. Expressing a predisposition to examine each site, Julia¹¹ (Y9-Y11/B-3/FG/8) indicated that the scrutiny of those cited in even a lengthy list was not always time-consuming because many were “repeats” and others could not be accessed. Jim (Y5/D-2/II/100) and Isaac (Y5/D-2/II/101) visited all the sites listed and printed off for later examination any articles thought to be of possible relevance. Isaac explained how in his case the printing out process did not always reach the intended conclusion. Sometimes he was thwarted by a shortage of paper or ink, and, on occasions, his father intervened when he considered he had printed out sufficient material;

- no selection - all sites were visited in the order cited in the list of results until enough information had been accumulated to meet the need. Undertaking work on the English Civil War, Kay (Y8/C-2/II/44) investigated all those listed by her search engine until she found one that was particularly helpful and which, with the others, could provide sufficient information. Zoe (Y9/B-3/II/79), too, looked at the first few until she believed that enough content had been secured. Seeking material on Mussolini, she recalled, “I looked at the first three and there was one that had all I needed.” Similar behaviour was reported by Ed⁹ (Y9-Y11/B-3/FG/8). His inclination to investigate the sites in order stemmed from his belief that the early ones were most likely to be relevant, and he was reluctant even to read the information in the lower reaches of the results list. A similar concentration on the sites at the top of such a list has been observed by Bilal (1998: 49, 52), and Ed’s lack of enthusiasm to read the whole of a long list was characteristic of youngsters observed by Kafai and Bates (1997: 110) and Fidel et al (1999: 29). Nevertheless, one of Ed’s ideas contrasted sharply with those of Toby (Y11/B-3/II/87), who considered that a high ranking in a list of results was a poor indicator of a site’s likely relevance to one’s need. Whilst Kay, Zoe and Ed all spoke of their tendency to search until sufficient information had been gained, they were generally seeking one “good site” rather than a group that would, in total, provide them with enough information. The concept of “enough information” as expressed by the informants is somewhat ambiguous. Although ostensibly they were intent on obtaining sufficient to meet their needs, the possibility should not be dismissed that they also meant “enough to cope with” and they might have lacked the time or effort necessary to search further;
- selection of sites based on own criteria, with visits made to all those that appeared suitable. Dennis (Y8/C-2/II/40) examined the site description carefully and scanned the text for the keywords that formed his relevance criteria. Looking for information on the disciples of Jesus, he pursued any sites if their names were mentioned in the site descriptions and continued his inspections until all the sites fulfilling his criteria had been investigated. Hirsh (1999: 1279) suggests that such an approach is typical of youngsters who are functioning at Piaget’s concrete operational stage, and Wallace and Kupperman (1997: 18) and Akin (1998) have found evidence that evaluation on the basis of particular criteria is widespread. Akin terms the method “filtering”. Toby (Y11/B-3/II/87), an older informant, employed a less hard and fast technique than Dennis. He referred to reading “the synopsis of the site and if it looks promising I’ll have a look” but was not knowingly scanning for specific words. He acknowledged that his strategy was far from perfect. “It’s a very hit and miss thing,” he conceded, and sometimes even sites listed first by a search engine proved completely irrelevant. Hirsh (1999: 1273) has found the method employed by Toby to be common among Internet users assessing the likely relevance of sites. A more cursory approach was taken by Ross (Y10/B-3/II/72): “I just looked down to see which one sounded the

best.” Unlike Dennis and Toby, Ross based his assessments primarily on the name of the site. If he considered that one merited further consideration, he would then read the description. The difficulties faced by informants in determining the possible relevance of sites echo those in research described by Sandlian (1995: 22) and Külper, Schulz and Will (1997: 208), who have noted the problems their youngsters encountered in deciding from the bibliographic record presented by an OPAC whether or not a particular book would be suitable to their needs;

- selection of sites based on own criteria, with visits made to those that appeared suitable until sufficient information had been obtained. This behaviour was similar to that addressed in the preceding category except that not all the potentially useful sites were examined. The tactics employed to identify relevant sites were generally similar, however. Jeff (Y9/B-3/II/77) visited only those he thought might be useful on the basis of the descriptions. Nevertheless, Greg (Y9/B-3/II/76), like Toby, believed it to be difficult to identify promising sites simply from such descriptions, and indicated that he often had to check the articles within a site to determine its value. This was done by “speed reading” the first part of an article and deciding whether or not the remainder should be perused. Greg employed a similar strategy when ascertaining the relevance of books;

b) **direct access to predetermined site.** This action emerged in two sets of circumstances:

- where the subject of the information-seeking was of ongoing interest and the user had both past experience of the topic and a good knowledge of appropriate sites. The “bookmarking” of sites was common. Jean (Y11/B-3/II/70) explained why she took this approach: “It’s so much faster. You can just click and get straight on, instead of having to go the long way round and put in the whole address, and get it right.” The popularity of searching by visiting Web sites already known to youngsters has also been observed by Gross (1998: 189) and Fidel et al (1999: 27);
- where the youngster’s attention had been drawn to a site by other sources, and he or she had not previously consulted it. Direction to sites came from providers as diverse as magazines (Zack, Y5/C-2/II/27), other people (Clint, Y7/C-2/II/38), telephone helplines (Bill, Y7/C-2/II/39) and leaflets (Jean, Y11/B-3/II/70). Sometimes word of “good sites” for a school assignment spread among youngsters. When doing work on the Islamic pilgrimage, Clint had learnt of a useful site from a “friend in another class”.

Most sites with which the youngsters were familiar and accessed directly without the involvement of a search engine provided information on subjects of personal interest. Barry (Y2/A-1/II/112), the youngest user of the Internet, regularly visited a certain site to learn about the design of houses. In relation to sport, several informants indicated going to a favourite Web site, usually for team news, results and stories (Douglas, Y7/D-2/II/93, Dirk, Y7/D-2/II/94, Antony, Y13/B-3/II/74). Antony visited a general site, that of the BBC, as his first choice and examined more specialist sites for minority sports, especially those played in other countries. He used the official National Basketball Association site to learn of basketball results in America. Other heavy exploitation of certain sites was indicated by Rick⁷ (Y7-Y8/D-2/FG/10), who visited “PlayStation” sites for pictures associated with “Pokemon”, by Adrian (Y10/B-3/II/73), who was interested in model plane construction and the campaign to legalise marijuana, and by Duncan (Y12/B-3/II/84), who accessed sheet music which he used when playing the guitar. These sites were visited regularly, as well as

frequently. Adrian indicated how he went to one "every few days to see if it's been updated and find out what's new". Some of the other sites accessed directly provided consumer information. Several were Web sites of particular retailers, such as Amazon (Toby, Y11/B-3/II/87), or sites mentioned in magazines. The consumer information sites quoted dealt with a range of products, although Neville⁸ (Y7-Y8/D-2/FG/10), Benny⁹ (Y9-Y11/B-3/FG/8) and Ed⁹ (Y9-Y11/B-3/FG/8) all used some which offered reviews of computer games. Whereas Benny singled out particular named sites, Neville was unable to be so exact because he had simply tagged those he liked as "favourites" and requested them as necessary. He could not recall their exact names.

Instances also emerged of youngsters using certain sites heavily for homework assignments. Patrick⁸ (Y7-Y8/C-2/FG/5) visited the general Web site, "BBC Bitesize", regularly in this context. A few inquirers exploited sites giving access to encyclopedias as a first port-of-call, in much the same way as many immediately opted for a CD-ROM encyclopedia. Kevin (Y7/D-2/II/95) was a keen user of the Web version of "Encyclopedia Britannica", which proved the only source reportedly consulted in both Web and CD-ROM form by the youngsters. Anneka (Y6/D-2/II/19), however, was less reliant on a single site. She explained how her father, who supervised her Internet use, kept a record of "good sites" together with their URLs and rarely used a search engine, going straight to those found to be helpful in the past. Occasionally, the experience of particular sites gained by youngsters had resulted from work at school and, believing some to merit further consideration, a few youngsters revisited these in their own time. Douglas (Y7/D-2/II/93), who had found a certain site especially useful when seeking information on volcanoes during a Geography lesson, appreciated the opportunity of additional time to exploit the site at home. Just as Douglas was visiting a particular site specifically for its value in relation to a single assignment, Jean (Y11/B-3/II/70), producing work on perfume packaging, scrutinised several cosmetics sites the addresses of which she had obtained from leaflets provided by a local department store. Only one instance emerged where a site was accessed directly without a prior knowledge of it or any recommendation/direction. Keen to learn more about alternative medicine, Norman (Y8/D-2/II/106) described how his mother, who shared his interest, frequently employed the Internet to find more information. He was aware that when she considered sites to be useful for future reference she "saved them as favourites". Norman sometimes exploited this facility to investigate the sites himself.

Usually, where a URL was inputted to take the user to a site, the address was either known by the youngster or copied from reference material. In a few instances the entry was more speculative. Damien⁴ (Y3-Y4/A-1/FG/12) recounted how, when seeking information on snakes for a school project, as well as using search engines, he had inputted phrases such as "www.reptiles" and "www.snakes" in the hope of finding suitable sites with those URLs.

At different times most youngsters who exploited the Internet used both search engines and the direct method, with their approach varying according to the situation. Eileen (Y12/B-3/II/66) outlined how, if a given site had been recommended or she was confident that a particular site already known to her would provide what she required, she employed the direct technique. Otherwise she would use a search engine. A few youngsters indicated that, even when pursuing information on the same subject on the same occasion, they used multiple approaches. Adrian (Y10/B-3/II/73), wanting information on arguments surrounding the legalisation of marijuana, usually began by going directly to sites with which he was familiar and if he sought more material

he would use “Yahoo!” and “Lycos”. Similarly, Norman (Y8/D-2/II/106) investigated both “bookmarked” sites and search engines when seeking information on alternative medicine.

3.3 Libraries

3.3.1 Individual methods

In public libraries, many of the youngest users did not themselves employ a strategy for finding material. They were wholly dependent on an accompanying adult for guidance on how they should search. It would appear that the grown-ups escorting many youngsters to the library took it upon themselves to find the appropriate section or materials on behalf of the child. The adult was usually, but not always, a parent. John³ (Y3-Y4/G-1/FG/2) was one of the rare youngsters whose adult assistant was not his mother or father. He explained, “Grandpa always helps us. He finds the bit on the shelves where the books I want are and I start at this end and he starts at that end and we just work our way through.” Such a total dependence on accompanying adults to find the relevant part of the library was less common among middle schoolers, although instances still emerged. Judy (Y5/D-2/II/13) indicated that she relied entirely on the help of her mother or grandmother when attempting to find information. The oldest informant to report this type of behaviour was Lionel (Y8/D-2/II/102), in his final year of middle school. When asked how he located the material he required in the public library, Lionel admitted with disarming honesty that “I leave it to my Mum really”. Where the informants showed some initiative in deciding how materials should be found, the action taken fell into one of the categories outlined below:

- a) **purposeful convergence**, in which youngsters familiar with the locations within the library of information on particular subjects went to these immediately without recourse to any aids. Barry (Y2/A-1/II/112) and Hilary (Y6/D-2/II/18) both used the public library so much to find material on subjects of interest to them that they were able to locate these parts of the bookstock without any help. Barry could describe precisely where books on “flight” were based, and Hilary indicated that she knew the whereabouts of the library’s “pet books”. Whereas in these instances the informants were able to pinpoint the spot where materials on the required topic were to be found, other youngsters utilised their previous experience of the locations of topics that bore some relation to those in which they were currently interested in order to identify the *general* area. This practice may be termed “benchmarking”. Pauline (Y6/C-2/II/30) explained such an approach when looking in her public library for material on the Tudors: “I found the Victorians. I knew where they were because I’d looked before and then I knew that the Tudors must be round there.” Whilst Pauline navigated from a related area, Duncan (Y12/B-3/II/84) found stock on a specific topic after directing himself to a more general subject. Indicating how he sought information on the reaction of maggots to light, he first located the science section: “I’ve been there so many times to find science stuff that I just know where it is.” The knowledge of Pauline and Duncan related to highly specific parts of the collection but Joan (Y4/C-1/II/52) had used the library for such a range of subjects that she now had a mental model of where many sections within the children’s collection were located and was confident of her ability to find roughly the part of the stock that was suitable when information on a variety of topics was required. As a method for finding information within libraries, purposeful convergence is not extensively covered in the literature, although its prevalence has been noted by Gross (1998: 145);

b) **random convergence**, which bears a superficial resemblance to purposeful convergence in that youngsters went immediately to the shelves without seeking direction from either library staff or tools. It differs, however, in that, where random convergence took place, the seekers were entirely unaware of the location in which books on the desired topic were to be found. The process was more trial and error-oriented and might be summarised as simply combing the shelves. It was employed by Sasha (Y4/A-1/II/117), Naomi (Y5/D-2/II/12) and Helena (Y6/D-2/II/20). The popularity of this approach has also been reported by Moore (1988).

These first two behaviours contrast with the remainder in that youngsters were attempting to find information without recourse to any library aid. Users taking the following approaches, however, made no effort to locate the appropriate materials immediately and implicitly acknowledged that some form of assistance was necessary.

c) **purposeful exploration**, involving focused attention on the labels on the library shelves or walls to determine where in the collection the sought information was located. Lynne (Y3/C-1/II/49), Frank⁵ (Y5-Y6/D-2/FG/3), Vanessa (Y5/D-2/II/14), Madeleine (Y5/D-2/II/15), Isaac (Y5/D-2/II/101), Ruth (Y6/C-2/II/31), Candice (Y6/D-2/II/16), Shane⁷ (Y7-Y8/D-2/FG/10), Kevin (Y7/D-2/II/95), Dennis (Y8/C-2/II/40), Greg (Y9/B-3/II/76), Emily (Y10/B-3/II/82), Gus (Y12/B-3/II/65), Joy (Y12/B-3/II/67), Eileen (Y12/B-3/II/66) and Melvyn¹³ (Y12-Y13/B-3/FG/9) all employed this method in public libraries, and Dominic (Y4/A-1/II/116) in the school library - the only library he ever visited. The labels themselves were described in a diversity of ways, including

- “the writing on the shelves” (Lynne, Y3/C-1/II/49, Vanessa, Y5/D-2/II/14);
- “the stand-up things that tell you all the numbers” (Dominic, Y4/A-1/II/116);
- “the titles down the aisles” (Frank⁵, Y5-Y6/D-2/FG/3);
- “the big headings” (Ruth, Y6/C-2/II/31);
- “the signs on top of the shelves that help you to pick out the subjects” (Dennis, Y8/C-2/II/40);
- “the index on the walls that gives numbers” (Greg, Y9/B-3/II/76);
- “the writing on top of the cases that have the subject matter” (Gus, Y12/B-3/II/65).

Vanessa recognised that the use of such labels was merely one element within a narrowing down process that began with her moving to the non-fiction stock and concluded with her “finding the right section”. Sometimes youngsters knew the general spatial area where information on the topic of interest was likely to be found and used shelf labelling to converge on the specific spot. Others less familiar with the library searched all the labels between their position on entering the adult or children’s section and the appropriate subject sequence. Regardless of their “entry point”, however, all users employing this strategy looked purposefully for a particular keyword within the labelling with a view to eventually identifying the relevant area of shelving. Little previous research appears to have found library signage to be so significant in youngsters’ attempts to find information on the shelves;

d) **personal assistance-seeking**, in which aid was sought from library staff. This approach - the most frequently reported of all - was the chosen option of Curtis (Y3/A-1/II/115), Fiona⁴ (Y3-Y4/A-1/FG/12), Will⁴ (Y3-Y4/A-1/FG/12), Siobhan⁴ (Y3-Y4/C-1/FG/6), Barbara (Y4/G-1/II/22), Lisa⁵ (Y5-Y6/C-2/FG/4), Larry (Y5/C-2/II/26), Gillian⁵ (Y5-Y6/D-2/FG/3), Nina (Y5/D-2/II/17), Jim (Y5/D-2/II/100), Piers (Y5/D-2/II/104), Alistair (Y5/D-2/II/105), Ruth (Y6/C-2/II/31), Ewan (Y6/C-2/II/42), Hilary (Y6/D-2/II/18),

Anneka (Y6/D-2/II/19), May (Y7/C-2/II/34), Clint (Y7/C-2/II/38), Bill (Y7/C-2/II/39), Dirk (Y7/D-2/II/94), Louise (Y8/C-2/II/45), Tanya (Y8/C-2/II/46), Rosemary (Y8/D-2/II/98), Jeff (Y9/B-3/II/77), Zoe (Y9/B-3/II/79), Scarlett (Y10/B-3/II/80) and Harrison (Y12/B-3/II/85). Those who might be asked were variously spoken of as

- “the people who work there” (Curtis, Y3/A-1/II/115);
- a/the “lady” or “the ladies” (Will⁴, Y3-Y4/A-1/FG/12, Kirsty, Y8/D-2/II/99, Scarlett, Y10/B-3/II/80, Harrison, Y12/B-3/II/85);
- “the people who like sell the books” (Barbara, Y4/G-1/II/22);
- “the librarian” (Siobhan⁴, Y3-Y4/C-1/FG/6, Jim, Y5/D-2/II/100, Pauline, Y6/C-2/II/30, Ruth, Y6/C-2/II/31, Ewan, Y6/C-2/II/42, Candice, Y6/D-2/II/16, Hilary, Y6/D-2/II/18, Clint, Y7/C-2/II/38, Shane⁷, Y7-Y8/D-2/FG/10, Andrea, Y7/D-2/II/97, Tanya, Y8/C-2/II/46, Jeff, Y9/B-3/II/77, Zoe, Y9/B-3/II/79);
- “somebody” (Lisa⁵, Y5-Y6/C-2/FG/4, Gail, Y7/C-2/II/37);
- “someone who worked there” (Nina, Y5/D-2/II/17);
- “the assistant” (Anneka, Y6/D-2/II/19);
- “someone” (Dirk, Y7/D-2/II/94).

Where the gender of members of library staff was indicated, they were invariably female. The informants appeared to have had no dealings with any male personnel. Some youngsters described situations in which they sought help in more impersonal terms. May (Y7/C-2/II/34) indicated how she had “asked at the customer desk”, Alistair (Y5/D-2/II/105) had “asked at the desk” and Piers (Y5/D-2/II/104) stated simply, “I asked.”

Many of those inclined to find information by approaching staff did so because they considered it the easiest course of action. Rosemary (Y8/D-2/II/98) explained, “You just ask them and they find it for you,” and Dirk (Y7/D-2/II/94) justified his inclination on the basis that “I can never be bothered to wander round looking for things”. In contrast, some informants were unwilling to seek help, even if it was at hand. Isaac (Y5/D-2/II/101) and Andrea (Y7/D-2/II/97) both claimed to be too shy to ask, and Pauline (Y6/C-2/II/30), who would consult staff only if she had failed in using her experience to find the appropriate shelves or when going to the subject index, attributed her reluctance to the fact that she “might be bothering the librarian if they’re busy”. The problem of user timidity has also emerged in research by Gratch (1978: 44). Toby (Y11/B-3/II/87), who enjoyed locating material independently, was equally reluctant to seek assistance from staff: “I prefer to be able to find things myself without having to bother other people to help me.” All situations in which help from staff was sought were reported in relation to the public library. No instances emerged in information encounters within the school library. Perhaps this is not surprising since only the high school library was manned full-time.

Although most of those reporting a tendency to seek assistance from library personnel were girls, the fact that a large number of boys also exhibited this behaviour is somewhat inconsistent with the observations of Burdick (1996: 21) and Bennett (1998: 24). The findings also contrast with those of Gratch (1978: 44), Pitts (1994: 247), Borgman et al (1995: 674) and Sandlian (1995: 22), who write that youngsters involved in their studies asked library staff for assistance much less frequently. They are more in keeping with the results of Wozny (1982: 39) and Fourie (1995: 134), which indicate a greater predisposition among youngsters to seek help from others;

e) **impersonal, central assistance-seeking**, where the “assistance” was obtained from an open access tool, including

- *the subject index*, used in the public library by Paula (Y4/A-1/II/118), Wes (Y4/C-1/II/51), Joan (Y4/C-1/II/52), Zack (Y5/C-2/II/27), Sandra⁶ (Y5-Y6/C-2/FG/4), Pauline (Y6/C-2/II/30), Cathy (Y6/C-2/II/32), Alexandra⁶ (Y5-Y6/D-2/FG/3), Suzanne (Y6/D-2/II/21), Maureen (Y7/C-2/II/35), Linda (Y7/C-2/II/36), Gail (Y7/C-2/II/37), Cameron (Y7/C-2/II/43), Douglas (Y7/D-2/II/93), Kieron (Y7/D-2/II/96), Andrea (Y7/D-2/II/97), Eric (Y8/C-2/II/41), Louis (Y8/D-2/II/103), Norman (Y8/D-2/II/106), Greg (Y9/B-3/II/76), Jeff (Y9/B-3/II/77), Glynis (Y10/B-3/II/81) and Toby (Y11/B-3/II/87), and in the school library by Francis⁸ (Y7-Y8/D-2/FG/10) and Rosemary (Y8/D-2/II/98). Once more, the subject index was described in many different ways, such as

- ⇒ “the book with the things in and numbers that go with them” (Paula, Y4/A-1/II/118);
- ⇒ “this booklet that has what you want and the number” (Wes, Y4/C-1/II/51);
- ⇒ “the yellow file with the numbers in” (Zack, Y5/C-2/II/27);
- ⇒ a book “that’s got everything you could look up and it helps you find the book. I think it’s some sort of index” (Sandra⁶, Y5-Y6/C-2/FG/4);
- ⇒ “the book that tells you where the books you want are in the library” (Pauline, Y6/C-2/II/30);
- ⇒ “the book” (Cathy, Y6/C-2/II/32);
- ⇒ “this book that’s got a list like... a few pages of all the things to do with the library” (Alexandra⁶, Y5-Y6/D-2/FG/3);
- ⇒ “the book that’s in alphabetical order” (Suzanne, Y6/D-2/II/21);
- ⇒ “the reference book for all the books there are [in the library]” (Maureen, Y7/C-2/II/35);
- ⇒ “that funny book” (Kieron, Y7/D-2/II/96);
- ⇒ “one of those big file things... that helps you to find where the things around you are” (Eric, Y8/C-2/II/41);
- ⇒ “the A to Z book” (Louis, Y8/D-2/II/103);
- ⇒ “the big book that tells you where the things are” (Greg, Y9/B-3/II/76);
- ⇒ “the big book” (Jeff, Y9/B-3/II/77).

Not all the subject indexes available in public libraries visited by the informants were in book or file format, however. Andrea (Y7/D-2/II/97), who used the library of Astley Community High School, referred to “the little trays with yellow cards in that tell you where things are”. Only Joan (Y4/C-1/II/52), Sandra⁶ (Y5-Y6/C-2/FG/4), Anneka (Y6/D-2/II/19), Linda (Y7/C-2/II/36), Cameron (Y7/C-2/II/43), Douglas (Y7/D-2/II/93), Norman (Y8/D-2/II/106), Lesley (Y9/B-3/II/78) and Glynis (Y10/B-3/II/81) described such a tool correctly as an “index”. Although Norman, a pupil librarian at his school, referred to it quite accurately as “the big, yellow index book”, the words of some of the youngsters using the term, “index”, correctly implied some vagueness. Douglas referred to “the index booklet thing”, and Glynis to “the index thing that they’ve got on the tables”. Nevertheless, some of the informants who did not know the name of the tool they were using described either the aid itself or their interactions with it so clearly that evidently they not only often consulted it but they also had a good grasp of its essential characteristics. Cathy’s (Y6/C-2/II/32) explanation that, “I went up to the book and looked up ‘hamsters’ and it gave me a number, something like 549.7”, reveals that she even recognised the

decimal nature of the classification scheme. Despite also being ignorant of the tool's name, Suzanne (Y6/D-2/II/21) was precise in her description of her use of the subject index: "I wanted to know about Hinduism so I went through the 'H's and it gives you a number so I went to the non-fiction part and looked for that number."

The only major problem reported by those using the subject index lay in formulating an appropriate searching term. Some employed either too specific a word or an actual name, rather than a subject. Eric (Y8/C-2/II/41) scanned for "Rothbury", expecting to see an exact match. The specificity of his approach contrasts sharply with Alexandra⁶'s (Y5-Y6/D-2/FG/3) more general perspective. Also seeking information on a local town, in her case Seahouses, she believed the broader, "north-east England" to be more suitable. Alexandra's behaviour is indicative of what Ingwersen (1982: 177-78) terms "the label effect", in which users express their needs in terms they believe to be appropriate to the system being used but which misrepresent what is actually wanted.

Subject indexes were occasionally employed in school, as well as public, libraries, although they took a different form. Rosemary (Y8/D-2/II/98) used one that she described as "a box with bits of cards with headings and you go to the numbers it tells you on the card". Francis⁸ (Y7-Y8/D-2/FG/10), a pupil librarian at Rosemary's school, consulted the same tool. He termed it "the reference box" and explained that, when seeking information on a particular topic, he went to it because "it has all the topics in alphabetical order and it gives you a number";

- *the classified sequence of the classified catalogue*, a microfiche version of which was employed by Damien⁴ (Y3-Y4/A-1/FG/12) and Kay (Y8/C-2/II/44) in the public library. They took contrasting approaches, however. Damien scanned the catalogue searching for a keyword and, on discovering it, noted the classification number indicated as pertaining to a book the title of which included that word. He then went to the shelves in search of *any* item with that number. Kay also scanned the book titles within the catalogue in search of anything on her topic of interest but, on seeing particular books, she recorded their details and set about finding these items on the shelves;
- *the author/title catalogue*, again consulted by two informants. Although Norman (Y8/D-2/II/106) exploited a microfiche version appropriately when seeking a particular book known to him, the wisdom of its use by Kirsty (Y8/D-2/II/99) is more questionable, as she was attempting to carry out a subject search.

The use of the classified sequence and the author/title catalogue for subject searches must be viewed as highly idiosyncratic and might prompt an onlooker to question whether or not the users were entirely cognisant of more suitable library aids available to them.

A further reported type of library behaviour, although not always an actual "finding" strategy, emerged as *unguided wandering* or simple browsing. Curtis (Y3/A-1/II/115) was one of the few youngsters to admit to this action. He explained, "I normally just have a look around and look at the shelves to see if there's anything I might want to learn about." In a more specific information-seeking situation, Shane⁷ (Y7-Y8/D-2/FG/10) indicated that he tended "to walk around a bit, then I ask the librarian". Shane was unable to clarify whether his initial reconnaissance involved searching for particular shelves, artefacts or labelling. "I guess I'm looking for anything really," he acknowledged.

The techniques many youngsters used varied according to whether they were operating within the school or the public library. Only one of the school libraries was staffed full-time and thus many youngsters simply did not have the option of seeking adult help. Furthermore, the libraries tended to be so small that material could be found simply by combing the shelves from the beginning of the non-fiction sequence to the end. This was a less realistic option in the much larger public libraries. Rosemary (Y8/D-2/II/98) took what she considered to be the easiest option available in each of the two libraries that she visited. In the public library, she consulted staff but at school she used the subject index.

For a few informants the methods they employed even within the public library were dependent on the circumstances. Joan (Y4/C-1/II/52) normally used "the indexes" but, where she had searched for information before, "sometimes I know where to look". If she did not know the location of the materials, Joan found the indexes to be invaluable "cos they save you walking up the library helplessly". Pauline (Y6/C-2/II/30) described similar behaviour. Similarly, there were certain subjects that Hilary (Y6/D-2/II/18) knew were located in particular places but, beyond these, she felt she had to ask staff. Differences in finding approaches did not emerge in individuals only on the basis of variations in their knowledge of the spatial locations of given topics within the collection, however. The type of search was also a factor. For the most part, Norman (Y8/D-2/II/106) used the subject index because he was usually attempting to find any information on a specific topic but, when looking for a certain text recommended by his mother, he favoured the author/title catalogue on microfiche. Occasionally, the finding strategy depended on the inquirer's mood. Eileen (Y12/B-3/II/66) indicated that generally she consulted the shelf labels but would ask library staff "if I'm feeling sociable".

Some youngsters were aware of bibliographic tools within the library which they knew were provided to help them but which they were reluctant to use in any circumstances. Frank⁵ (Y5-Y6/D-2/FG/3), who preferred to consult the shelf guides, recognised the existence of a drawer-based catalogue: "You can go to a wooden thing that gives you numbers, like 777115, for the numbers of all the subjects." Neville⁸ (Y7-Y8/D-2/FG/10), who described a comparable aid, was particularly deterred by its microfiche format, which he criticised for being "really complicated" and involving "loads of things on one sheet". Just as Neville was discouraged by the demands of microfiche, Anneka (Y6/D-2/II/19) preferred to "ask the assistant" rather than "look through the index book" because less effort was involved. In view of the fact that many youngsters employing indexes or contents lists when searching through individual books drew attention to product reasons for favouring their preferred tool, it is surprising that, in the overwhelming majority of cases where informants indicated an awareness of other finding strategies in libraries and explained their preferences, their decisions were based on ease of use arguments rather than effectiveness of information retrieval.

When seeking non-fiction books, almost all youngsters were searching by subject. The only inquirers pursuing certain titles were teenagers (Norman, Y8/D-2/II/106, Joy, Y12/B-3/II/67, Melvyn¹³, Y12-Y13/B-3/FG/9, Tessa, Y13/B-3/II/75) - indeed three were "A" Level pupils - and each was acting on the recommendation of an adult. The pattern of subject rather than specific item searching is congruent with the findings of Tyerman (1989: 394) and Fieguth and Bußmann (1997), and the belief of Cochrane (1983: 3) that most searches within libraries are of this type. The Whitley Bay youngsters' subject-driven tendency perhaps partially accounts for the very low level of catalogue use emerging in the project. These findings are again comparable with those of several past studies. The research of Fourie (1995: 134) and Fieguth and Bußmann (1997) has also found that very few of the youngsters in their samples used any form of library catalogue to

find information. The latter authors comment, "Access to library stock is not done by using OPACs or catalogues, but by browsing through the library." Cooper (1996: 59), Külper, Schulz and Will (1997: 207) and Gross (1998: 190) hold a similar opinion. These views maybe imply that youngsters tend not to make use of finding aids generally. The Whitley Bay study suggests that this is not the case universally, as shelf labelling, the subject index and library staff were all frequently consulted. Other youngsters immediately converged on particular spatial areas of the library. All these actions appear more purposeful than the term, "browsing", might indicate.

Rowbottom (1982: 140), Tabberer (1987: 89), Moore (1988, 1995: 14, 23), Eaton (1991), Moore and St. George (1991: 165, 167), Pitts (1994: 247-48), Cooper (1996: 49), Fieguth and Bußmann (1997) and Dobson (2000: 43) have shown that major problems have been encountered by young users attempting to find on the shelves particular items the details of which they have learnt via the catalogue. In this project, however, such a difficulty was not really apparent, possibly because situations in which youngsters were seeking specific titles were rare. Furthermore, where youngsters looked for certain areas of stock after learning their classification numbers from the subject index or library signage, they were often seeking broad topics with short numbers, thereby simplifying the task of finding physical locations. Other methods, such as purposeful convergence, random convergence and personal assistance-seeking, simply did not require the youngsters to match classification numbers with actual spatial locations.

3.3.2 Orders of methods

After expressing a preferred approach to locating information, many informants acknowledged that if their first attempts failed, they were likely to pursue an entirely different strategy rather than simply modify their behaviour with the aid they were using. For some, consultation of staff formed such a secondary method (Zack, Y5/C-2/II/27, Candice, Y6/D-2/II/16, Gail, Y7/C-2/II/37, Shane⁷, Y7-Y8/D-2/FG/10, Douglas, Y7/D-2/II/93, Kirsty, Y8/D-2/II/99, Toby, Y11/B-3/II/87). Those searching shelf labelling or the subject index for a certain keyword were particularly unlikely to repeat their approach with another term if the initial keyword failed to facilitate their access to the material required. Pauline (Y6/C-2/II/30) was unusual in employing a three-level technique. Where she was confident that she knew the location of books on the desired subject on the shelves, she went straight to the appropriate part of the library. If this failed or she were unable to employ such a method, she consulted the subject index and if her efforts with this tool were unsuccessful she asked library staff. The formulaic nature of Pauline's finding strategy contrasts with the approach of Greg (Y9/B-3/II/76), who was equally likely to locate information by examining shelf labelling or looking up his topic in the subject index.

3.3.3 Misconceived methods

Some youngsters spoke of approaches that revealed fundamental misconceptions with regard to the arrangement of non-fiction stock. Corey³ (Y3-Y4/A-1/FG/12), by his own admission a reluctant library user, described how, in a hypothetical situation, he would look for books on the Romans by going to the shelves and looking under "R". Harvey (Y6/C-2/II/33), who used the public library infrequently, thought that he would look "in alphabetical order" and was unaware that non-fiction books in public libraries are not arranged in an A to Z sequence by subject. Similarly, Nigel (Y5/C-2/II/29), who generally obtained information from the

Internet and books at home, explained that he would expect to find books on the Aztecs in “the first non-fiction column ‘cos Aztecs starts with ‘A’”. Austin (Y3/G-1/II/23) held a comparable view, indicating that he would search for books on the footballer, Alan Shearer, by looking on the shelves under “the letters at the start of the football player’s second name”. Davina³ (Y3-Y4/C-1/FG/6), who visited the library mainly for fiction material, believed that books within the non-fiction stock could be found “under the first letter of the author’s surname”. Gavin (Y1/G-1/II/24) was even more confused. He initially believed that he would find books about space “under ‘S’ on the shelves” but later admitted that this was unlikely to be successful, suggesting that the stock was more likely to be ordered according to “the second name of who it’s by, so I just don’t know”. The ignorance of Corey, Harvey, Nigel and Austin may be attributed to their minimal interest in or use of the public library, Davina’s to her limited experience of using parts other than children’s fiction, and Gavin’s simply to his tender age. The misconceptions of others who claimed to be regular users are more surprising, however. One such individual, Larry (Y5/C-2/II/26), outlined how, again in a hypothetical situation, he would find books devoted to guitars by initially asking staff for “the music part” of the library. Within this section, he would “look for a ‘G’ and then find ‘guitar’”. Despite indicating that she visited the library “usually once every two to three weeks”, Christine (Y5/C-2/II/47) was unaware of any order in the sequence of non-fiction books. “They’re all mixed up. It’s like the Lottery,” she quipped, although she was aware that fiction was arranged alphabetically by the author’s surname. Two explanations for the misconceptions of Larry and Christine might be offered. Either they deliberately lied and did not use the public library as often as they pretended or accompanying adults carried out the searching activities and the youngsters were unaware of the methods they employed.

Some of the youngest informants also misunderstood certain bibliographic tools. Penelope (Y2/C-1/II/55), for example, confused her library’s subject index with the contents list within a book. Perhaps the concept of a library was less familiar to her than that of a book and, aside from the physical building, might have been too abstract for her to grasp.

3.3.4 Terminology

Many informants failed to provide the accepted name of certain procedures, artefacts and types of people they encountered in the library. As indicated in section 3.3.1, any staff were often assumed to be “librarians”, and the subject index was rarely correctly identified. Instead it was frequently described simply in terms of its apparent characteristics. Similar problems emerged in relation to microfiche readers. Only Norman (Y8/D-2/II/106) used the correct name. Other informants described such a device as

- “a computer where you... put a little thing in and it shows you all the... names of the books and you can look where they are” (Damien⁴, Y3-Y4/A-1/FG/12);
- “the little computer thing... where you slide the thing in” (Kevin, Y7/D-2/II/95);
- “one of those things where you put the little piece of paper in and it shows you all the different titles of books and everything” (Kay, Y8/C-2/II/44);
- one of those “machines where you put this film in and then you slide it along and you can find the thing you’re looking for and the number” (Neville⁵, Y7-Y8/D-2/FG/10);
- one of “those little machines you can use” (Harrison, Y12/B-3/II/85).

The fact that two youngsters described a microfiche reader as a "computer" is surprising, given the fact that resemblances are highly superficial. Although both are electrical and involve the user reading a screen, there appear few other similarities. For these youngsters the microfiche format added considerably to what Flint (1979: 72) and McDonald (1988: 37) refer to as the "mystery" or "mystique" of the catalogue in the eyes of youngsters.

Even the oldest participants exhibited considerable ignorance of library terms. Melvyn¹³ (Y12-Y13/B-3/FG/9), for example, had used his local library's inter-library loans procedure on several occasions but remained unaware of its actual name.

4 UNMET NEEDS

An alarming number of instances were reported in which needs were not met, although few informants were able to identify specific reasons why this was the case. The high frequency of unmet needs was not entirely unexpected since previous research, especially that of Walter (1994: 123-24), has also found many information needs among children not to be fulfilled. Within the Whitley Bay study, these fell into two categories: those in which a need was felt but no attempt was made to find information, i.e. needs that may be termed "unexpressed" (Nicholas, 2000: 23), and those where some form of seeking action did take place but without success. Where the youngest inquirers wanted but did not actively seek subject-related information, inaction often resulted from their not knowing where to start looking. Edgar (Y2/A-1/II/111) was deterred because the type of materials he believed would be most likely to help him were not available at home. Wanting information on jungles, he was prevented from looking by his knowledge that "we haven't really got a jungle book". The lack of action taken to satisfy needs for affective support and empathetic understanding was especially evident. Many youngsters felt needs of the former type but did not seek information, perhaps in the belief that to acknowledge their desire for emotional support was to admit to others a weakness in themselves. Curiously, however, they were quite willing to talk of such needs to the researcher. Latrobe and Havener (1997: 194) have also found youngsters to be reluctant to seek information on certain areas, and specifically indicate "relationship issues".

Instances in which ineffective information-seeking action was taken often involved spontaneous "life situation" information. This was principally because in many cases no source existed that could provide the desired information, which simply had to be "discovered". Some subject-related needs, too, proved problematic in this respect. The answer to Ian⁴'s (Y3-Y4/G-1/FG/2) question of how many stars there are in the galaxy, for example, has confounded even world renowned astronomers such as Carl Sagan, who once famously admitted he could provide no better an answer than "millions and millions". Efforts to find personal information from materials such as books were also often unsuccessful as what was found was usually too general and insufficiently particular to the inquirers' own situations. June (Y1/C-1/II/57), who wanted to learn more about a fossil sent to her by her grandfather, recalled that the books she consulted "didn't really tell me anything about *my* fossil. They just showed me like pictures of fossils... and told me things more about dinosaur fossils". Some user failure was the result of unsuitable sources being consulted. Neville⁸ (Y7-Y8/D-2/FG/10) inappropriately interrogated the local GOSIP point, which dealt in local information pertaining to Newcastle, to find out about television schedules, whilst several inquirers visited Tourist Information Centres in search of materials for local studies projects. When other people were consulted, a critical problem, especially for

younger inquirers, lay in asking someone with sufficient knowledge of the subject to provide the necessary information. Suzanne (Y6/D-2/II/21) encountered this difficulty when wanting to know "what it would be like" when she appeared as a contestant on a television quiz show. Those she normally approached for information, such as her parents and teachers, had very limited knowledge of the area. If her habitual course of action failed, Suzanne was unsure as to how to respond. In a library context, Moore (1988, 1995: 22) and Moore and St. George (1991: 167) recognise this to be a common problem.

When information was sought by youngsters for their own interest, older inquirers were more successful than their younger counterparts. The latter were often uncertain as to where to look and had both a limited awareness of the options available to them and a low level of skills associated with information-seeking. Faibisoff and Ely (1976: 9-10) write that these are major themes within many studies of information-seeking, not only those relating to children, and Fieguth and Bußmann (1997) emphasise the problems encountered by youngsters in "deciding upon the relevant medium to search". Some of the youngest informants, such as Chantal^R (R-Y2/G-1/FG/1), Brian¹ (R-Y2/G-1/FG/1), Gerald (Y1/G-1/II/8) and Austin (Y3/G-1/II/23), were unaware, in specific situations, of any alternatives to asking others, and Anna (R/C-1/II/62) did not know how she could find out about dinosaurs beyond watching video recordings and looking at books - the two methods that she employed. The lack of basic skills among younger children has also been identified by the Children's Literature Research Centre (1996: 215) and Gross (1998: 134), who indicate that limited reading ability is a particular barrier. It may be a reflection of the scale of the problems faced by such youngsters that LaBounty (1997) found that the highest number of information queries to an e-mail reference desk came from primary-aged children. In contrast to their more inexperienced counterparts, Whitley Bay teenagers had, over a period of time, established a good knowledge of specific materials, especially where the need related to a topic of ongoing interest, and possessed greater skills in exploiting them.

If subject information were required for school, it was generally found eventually, whether the informants were young children or teenagers, although not always in the first source investigated, and, especially in the case of older pupils, various sources were often required to meet the need in its entirety. This issue of information scatter has been found by Durrance (1984: 140) to be a significant problem for adult information-seekers too. In relation to school-required information, here, again, inquirers in the younger half of the sample were limited in their knowledge of the sources available. Wes (Y4/C-1/II/51) was unaware of anything else he could have done when looking for information on the USA apart from using the public library and the Internet. Again, such a situation is indicative of the restricted view of alternatives that Moore (1995: 23) has found to be common in her own research. Even Whitley Bay youngsters who were generally successful in their information-seeking usually isolated a small number of providers when discussing the information-seeking options available to them. Frank⁵ (Y5-Y6/D-2/FG/3) listed these as "going to my Mam, going on 'Encarta' or going to the [public] library". The first option involved both asking her to share her own knowledge and seeking sources from her, such as her own books.

5 GENERIC AND CROSS-SOURCE PATTERNS

5.1 Problems

These arose from both the nature of the need and the source or sources employed to satisfy it:

a) **problems resulting from the nature of the need**

- ***“unnamed subjects”***. Belkin (1980: 137) refers to “the problem of non-specifiability of information need”. This appears particularly pertinent in the several situations where youngsters were seeking information for school on topics that they were unable to represent as search terms. The fulfilment of such needs caused major difficulties unless other people were approached. Joe (Y3/C-1/II/50) was required to find out about static electricity, although the name of the phenomenon was not supplied by his teacher. She merely demonstrated how a sheet of transparent plastic could be made to stick to another surface and asked her pupils to investigate why this was happening. In discussing the matter with his parents, Joe was able to draw out their knowledge in response to his account of the demonstration but acknowledged that the task of finding out about it from his encyclopedia, which he often consulted, would have been much more challenging. This story is testimony to the value of information-seeking via other people, who are much more flexible than paper and electronic sources, and access to their knowledge is not limited to a keyword approach. In a further situation involving an “unnamed subject”, Tony (Y2/C-1/II/54) wanted to know more about what he could see when examining a range of everyday materials and substances under a microscope. Gross (2000: 13) notes the problems caused by such queries deriving from curiosity, since, when seeking information in a library, the youngster may be in no position to conceive of his or her inquiry in relation to a particular subject. The issue of “unnamed subjects” is also recognised by Choo (1999), who writes that, in years to come, the utility of information systems might be improved by provision for users to interrogate them via “life situations” as well as keywords. Dervin and Nilan (1986: 8) hold a similar view;
- ***interest in themes, not topics***. Several subjects on which youngsters sought information were not individual topics involving a single event or phenomenon but higher level themes deriving from multiple instances. They included “endangered animals” (Joan, Y4/C-1/II/52), “how films have treated aliens” (Francis⁸, Y7-Y8/D-2/FG/10) and “war crimes and their punishment” (Francis⁸, Y7-Y8/D-2/FG/10). In each case the inquirers, seeking information leading to an overall understanding, found that, when presenting their keywords to the index of a book or an Internet search engine, their isolation of particular elements led to reductionism. Their focus shifted to the coverage of individual instances - a certain animal, a particular film or a specific war. The onus fell on the youngsters to synthesise for themselves the overall picture they required, which proved difficult to obtain as packaged information within the sources available to them;
- ***current information for school***. Rarely were pupils asked to find material on ongoing events for school purposes but, where this did occur, such up-to-date information was often hard to find. Attempting to answer a series of questions for Geography work, Shane⁷ (Y7-Y8/D-2/FG/10) was troubled by only one, which related to the current eruption of a volcano. Many of his difficulties stemmed from the fact that he had employed a paper encyclopedia and a comparable CD-ROM resource when answering the previous questions. These were of no help when seeking information on a current matter, which could be found only through using particular types of sources that he had not originally intended to consult, such as newspapers, the Internet or news broadcasts. The location of current information for the youngsters’ own enjoyment proved much less troublesome and details on matters like the latest football results and

team news were readily found, usually because inquirers had already developed habits in accessing this information from sources they knew would be of help to them;

- ***general subject needs.*** On the very infrequent occasions where a need for school-related information was especially broad and the youngster felt obliged to collect all the material he or she could find, “information overload” was experienced. Here, too much relevant information was available. Such overload has been identified as a significant information-seeking phenomenon by many researchers and commentators, including Faibisoff and Ely (1976: 10), Dervin (1976b: 324), Durrance (1984: 140, 142), Friel (1995: 110), Bilal (1998: 45) and Limberg (1999a), and in itself forms the subject of a research project described by Akin (1998). The most obvious example of the problem within the Whitley Bay study was provided by Eileen (Y12/B-3/II/66), who was overwhelmed by material when asked to keep a scrapbook of “stories about Germany”. The difficulties experienced by older informants, like Eileen, run somewhat contrary to Akin’s (1998) suggestion that “information overload” is more likely to be experienced by younger children, as a result of their lesser experience and lack of sophistication in their information handling techniques. Overload did not emerge among either older or younger informants in relation to interest-driven information needs, perhaps because inquirers could determine the boundaries of their information-seeking for themselves. In particular, they could stop when they considered they had found enough to satisfy their interest without having to account for their decision to others;
- ***perceived non-existence of information.*** One instance arose in which a youngster seeking information for her own interest was unsure of its existence. Pamela⁸ (Y7-Y8/C-2/FG/5), looking for details of local hockey clubs playing in major national leagues, was unconvinced that any such teams were competing at this level and was, therefore, dubious as to the availability of the information that she sought. This problem of “not knowing” has also been recognised by Durrance (1984: 143-44);

b) problems associated with information sources

- ***unsuitable level within materials.*** A few inquirers struggled to find sources appropriate to their reading or cognitive abilities. Tony (Y2/C-1/II/54), who frequently consulted his father’s books on Newcastle United Football Club, admitted that he was often unable to read some of the words within the books, which were written “more or less for grown-ups”. Penelope (Y2/C-1/II/55) was another first schooler who, when attempting to learn about the Millennium Dome, looked at sources intended for adults. However, Barry (Y2/A-1/II/112), like Tony, one of the youngest children to look for information on personal interests, encountered no such problems when using the public library. When asked if he struggled to locate within the building volumes of an appropriate level devoted to the design of houses, he replied, “I usually find a book that suits me ‘cos the library is pretty much for everyone, all ages.” Nevertheless, the difficulties of finding non-fiction for young readers have been well documented over the last two decades. In the early 1980s, Silver, Drach and Blaha (1982: 17) commented that, the younger the child, the fewer the appropriate reference books. More recently, research by White (1990: 309-12) has supported this assertion, and the Children’s Literature Research Centre (1996: 215) has also noted a paucity of non-fiction for young children.

Perhaps more disturbing than the problems experienced by Tony, however, were those of Norman (Y8/D-2/II/106) when using for a homework assignment a booklet prepared by his teacher. He was unable to read some of the words within it and others held no meaning for him. It would appear that

difficulties of this type are particularly likely to emerge among older informants, whose teachers may direct their charges more frequently to teacher-prepared materials, such as photocopied sheets, without being as aware of pupils' individual ability levels as teachers of younger children. Given Norman's problems in using the teacher-produced material, it is ironic that Gross (1998: 139-40) found that in her study the preparation of such documents was often a result of staff acknowledging the reading difficulties youngsters may experience in using published materials;

- *lack of information centrality*. Again in relation to school-related subject information, the inability to find a single source supplying all the material required for a particular assignment was highly frustrating for the many youngsters inexperienced in or even ignorant of the need to exploit multiple materials sometimes within a range of environments. When Jeff (Y9/B-3/II/77) complained that information on the subject of "the Home Front" was "dead hard to get", he was referring not to its lack of availability but rather its scatter.

5.2 Thematic issues

Other themes were associated with the activity of information-seeking, the "mindset" of inquirers, drivers of and deterrents to information-seeking action, the communication of information, reactions to retrieved information and youngsters' language/terminology:

a) the activity of information-seeking

- *information-seeking and learning*. The nature of some of the informants' methods suggests there is only a fine line between the processes of information-seeking and learning. Indeed, two of Kolb's (1984: 30) "modes of experiential learning" - "reflective observation" and "active experimentation" - bear close resemblance to the respective information-seeking approaches of "direct observation" and "exploration". The distinction between information-seeking and learning seems especially blurred when information is inferred by the individual or when the inquirer brings to bear his or her own critical faculties and reasoning. Yet to Dervin (1983: 5) the latter is a key part of the information-seeking process, which she maintains is a "constructing" activity, involving the personal creation of "sense". In the same way Kuhlthau (1999a: 15) notes how information-seeking may be interpreted as a process "in which a person is actively constructing a new understanding". It may be argued that here what is being gained through direct observation and exploration is "knowledge", rather than "information", and, if one accepts Kolb's (1984: 38) description of learning as a "process whereby knowledge is created through the transformation of experience", knowledge construction seems synonymous with learning;
- *information-seeking as a convergent process*. Particularly where subject material was sought for school, information-seeking might be understood as a process in which information was obtained through increasingly focused activity moving from a macro to micro level. On occasion, the former began with an approach, from the range of options available, to a library or home collection of materials, which was initially scrutinised for appropriate items. A book was retrieved and ultimately, in micro information-seeking behaviour, a certain section or chapter examined for specific information. In a further example, a Web site was found on the Internet, either directly or through the use of a search engine, a relevant or potentially relevant article was printed out and again this was combed for the desired information. A similar pattern with small deviations pertained to CD-ROM. In each case paper

resources were acquired - admittedly in relation to the Internet and CD-ROM these took the form of printouts - and the seeking of actual information from specific text was frequently a much later process, often in a different environment. Wilson (1999: 263) has also noted the convergent nature of information-seeking. He terms the finding of sources "information-seeking" and users' actual interactions with these materials "information searching behaviour". The latter activity appears synonymous with that of "locating information" described by Armbruster and Armstrong (1992: 2) and with the process of "extracting" outlined by Ellis (1989: 176, 178, 198-99). Not all youngsters, however, reached the final stage of combing text for information. For some, like Frank⁵ (Y5-Y6/D-2/FG/3), who wished to find material on "Encarta" relating to a topic being studied at school, it was sufficient to print off an appropriate article, which was then shown to his teacher;

- *use of idiosyncratic methods.* Wray and Lewis (1992: 22) write that youngsters are prone to employ alternative techniques to those that they have been taught or which form accepted conventions. This was apparent in many contexts, including the "speculative" entry of URLs to access Web sites, sequential approaches for locating information in books and several unusual ways of finding information in libraries;
- *numbers of and precision in search terms.* Whether using CD-ROM, the Internet, library classification schemes or indexes within individual books, a single search term was generally used, especially where this was successful, although Duncan (Y12/B-3/II/84), desiring information for a school assignment on how maggots respond to light, employed three - "maggots", "larvae" and "phototaxis" - when exploring various subject volumes. All were taken from his "task sheet". Chen (1993: 37) found this approach common among youngsters she scrutinised using a library catalogue, and Large, Beheshti and Breuleux (1998: 357) discovered that many of their research subjects searched CD-ROM resources only under terms used by their teachers when presenting project objectives. A much younger inquirer, Pauline (Y6/C-2/II/30), also used multiple keywords when examining the indexes of individual history books for information on the Spanish Armada - "the Spanish Armada" itself, "Tudors" and "boats/ships".

Usually, the youngster chose a search word that matched the topic of interest closely. Children observed by Solomon (1993: 254) have exhibited a similar tendency. Some terms, however, were much broader. McGregor (1993: 89), too, has detected an inclination among her teenagers to search under general terms. Within the library environment, her pupils often browsed beneath a wide heading for appropriate subdivisions rather than attempted to identify such categories on their own. Hirsh (1996: 50) attributes a method of this kind to the lack of cognitive load it places on the inquirer. The inclination of Whitley Bay youngsters to direct their attention initially to a broader area than that in which they were interested was evident in a range of situations, in different environments and across different sources. Larry (Y5/C-2/II/26), seeking in the public library books dealing with guitars, recalled how he first asked an assistant for directions to "the music part" of the collection. In the same way, youngsters like Harvey (Y6/C-2/II/33) drew attention to how they preferred contents lists within books to indexes because the former deal with broader groups. Similarly, some users of electronic resources employed search terms that were far more general than the topics about which they wanted to know (Curtis, Y3/A-1/II/115, Francis⁸, Y7-Y8/D-2/FG/10, Zoe, Y9/B-3/II/79, Petra¹¹, Y9-Y11/B-3/FG/8). Such an approach has also been observed by Bilal (1998: 49). Madeleine (Y5/D-2/II/15), however,

reported behaviour of a contrasting kind. Checking in an index within a book to find information on the digestive system, she believed “liver” to be a suitable keyword and did not consider anything of a more generic nature.

No informant referred to employing Boolean operators when interacting with either CD-ROM or the Internet. This might have been the result of an ignorance that they could be used. The overall pattern is congruent with the picture emerging in research reported by Barlow, Karnes and Marchionini (1987: 68, 70), Marchionini (1987: 72, 1989b: 607), Liebscher and Marchionini (1988: 232), Nahl and Harada (1996: 202, 205), Külper, Schulz and Will (1997: 207), Lyons et al (1997: 18), Wallace and Kupperman (1997: 20), Bilal (1998: 48), Large, Beheshti and Breuleux (1998: 356), Schacter, Chung and Dorr (1998: 847) and Hirsh (1999: 1271-72). All highlight either an absence of Boolean logic in youngsters’ search terms or an inability to employ it effectively. Whether CD-ROM or the Internet was exploited, decisions on the keywords to use were made by the Whitley Bay informants at the point of need. There was little or no preliminary planning;

b) the “mindset” of inquirers

- *aims of information-seeking.* Most inquirers, intent on retrieving sufficient information to meet the need with the minimum of inconvenience to themselves, seldom consulted more than a few sources. Sheingold (1987: 81) has found this behaviour to be typical in youngsters producing homework. The Headteacher of School D-2 (HT/D-2/II/7), who had spent over thirty years in teaching, commented, “Kids just don’t ever seem to build up a pool of information and then construct their writing for an assignment from the whole. They go to one book, find something, write a bit, find a bit more, and so on.” Heppell (1999) also draws attention to the inclination of youngsters to use single sources, arguing that typical behaviour involves cutting and pasting from a CD-ROM article or plagiarising an existing essay they have found via the Internet. The use of single sources was most apparent, however, when material was sought for inquirers’ own interests. In undertaking their own small scale projects, Joan (Y4/C-1/II/52) examined no more than a paper encyclopedia and a comparable electronic resource, Malcolm⁶ (Y5-Y6/C-2/FG/4) used only “Encarta”, and Cathy (Y6/C-2/II/32) looked at a single book. Malcolm and Cathy were two of many who, requiring information for their own enjoyment, exploited just one source.

Even when seeking information for school, no-one reported looking in turn at all the books within the appropriate section of the library. Some simply selected the first they considered suitable after reading its title, examining the cover or skipping through the pages. A similar tendency has been observed by Cole and Gardner (1979: 174). Few informants went as far as consulting the contents list or index. In the same way, rarely did young users of the Internet examine all sites mentioned on a “hit list” after carrying out a search. Such inclinations appear indicative of wider information-seeking behaviour and are consistent with the observation of Külper, Schulz and Will (1997: 208) in relation to OPACs that children generally do not scan more than just a few hits for relevance. Two possible explanations might be suggested for this behaviour. Either inquirers were keen to make as little effort as possible or they were wary at the prospect of collecting too many sources for later use, given Wehmeyer’s (1976: 89) observation that youngsters struggle to synthesise essays from multiple sources. They might, in

effect, have been attempting to prevent “information overload” in the manner of some of Limberg’s (1999a) teenagers.

Although instances did emerge in which first schoolers like Sasha (Y4/A-1/II/117) and Joan (Y4/C-1/II/52) sought information from several sources when undertaking projects for school, this behaviour was more common among older inquirers, often because of the nature of assignments. Mancall (1978: 91) and Gross (1998: 139) have also found high school work to demand the use of multiple sources. However, that youngsters looked for information in different places does not necessarily mean that the material in their final work was drawn from a range of sources. Some, like Alexandra⁶ (Y5-Y6/D-2/FG/3), had consulted several items but found useful information in only one. Indeed, the fact that multiple sources were examined was, on occasion, merely evidence of initial information-seeking failure; the youngster had been unable to find immediately what was required and had been forced to look elsewhere.

A few high schoolers, such as Ross (Y10/B-3/II/72), used a single resource even for formal school work. Seeking information on the Internet for a talk to his classmates, Ross used no other materials, mainly as a result of a lack of time between his selecting the topic and the date when the presentation had to be delivered. His behaviour is in keeping with the tendency noted by Nehnevajsa (1966: 161) that, when faced with a pressing need, one will use whatever information is at one’s disposal, “no matter how inadequate it may be”;

- ***holistic approaches.*** High schoolers usually realised, albeit often reluctantly, that all the information required for a school assignment was unlikely to be found in a single source. Toby (Y11/B-3/II/87) articulated the ideas of many when he commented, “It’s really a case very much of finding small bits of information here and there and then bringing them together to make something you’re happy with as a project.” Few, however, formed a plan specifying how the ultimate product would be synthesised. Nevertheless, Harrison (Y12/B-3/II/85) explained that, whilst investigating different sources, he developed a vision of the contribution each might make to the whole. He identified gaps and responded to them by seeking new sources. Musing on his approach, Harrison explained, “If there’s part of the book that’s missing a small bit of information it always helps to go and check in another book ‘cos no matter how undetailed it is there might be a little bit more that the other text has just missed out on.” Whereas Harrison formed his opinions on the value of each source and on what was now needed whilst writing a rough draft of his essay, Melvyn¹³ (Y12-Y13/B-3/FG/9) preferred a system based on preliminary reconnaissance. He indicated, “I start off with one book and go through the whole book for the subject [of the assignment] and then do the same with other books so that you’ve got like a map of books in front of you that brings everything you need together.” Ideas in relation to this “map” were sometimes recorded via notes that Melvyn made to himself.

The methods of Harrison and Melvyn were essentially reactive responses to the sources they encountered. A more proactive approach, and one that was recorded much more formally, was taken by Toby (Y11/B-3/II/87). He recognised that an assignment involving the design of a meal for one person required him to address a range of different topic areas. These he represented in an arrow diagram upon which he also marked strategies or sources to be employed for the acquisition of information pertaining to each element. Toby’s plan must be seen in context, however. The task he was tackling was more

practical than the subject-based essays of Harrison and Melvyn, involved a series of fairly discrete aspects and lent itself to deconstruction to a much greater degree;

- **habitual patterns.** When tackling needs of the same type, an inquirer tended to use similar materials and employ methods that varied little over time. This was especially true of those with repeating needs for subject information for their own purposes. They would consult the same sources at intervals in order to learn the latest news about their topic of interest. This behaviour, which might take the form of revisiting a certain Web site or purchasing successive issues of a magazine, is similar to that of “monitoring” described by Ellis (1989: 178, 194-95) and the “ongoing search” action reported by Wilson and Walsh (1996: 23).

Even if the subjects varied within a particular type of need, the pattern of information-seeking behaviour often hardly differed. Toby’s (Y11/B-3/II/87) first responses when requiring information for school assignments were usually to visit the appropriate departmental library and the public library. In the same way, “Encarta” proved a popular first port-of-call for many middle schoolers. This is consistent with the attitude which Dervin (1992a: 66) believes to develop in many information-seekers - “given this gap, then this tactic”. Moore and St. George (1991: 164) identify a formula for action that continually re-emerged among the youngsters they observed seeking information in the library and, more broadly, Faibisoff and Ely (1976: 9) recognise that the inclination of inquirers to follow such habitual patterns when seeking information is a major theme within many studies;

- **sequencing of source investigation.** Where youngsters used multiple sources for school-required subject information, the thinking behind the order that inquirers followed in consulting them varied, although usually the first to be approached were those most accessible. Again, this tendency has been detected by a range of commentators, including Taylor (1968: 180-81), Faibisoff and Ely (1976: 9) and Liesener (1985: 12). In terms of specific situations within the study, Naomi (Y5/D-2/II/12) described “looking at home”, either in terms of books or on the computer, before visiting the public library. Candice (Y6/D-2/II/16), too, searched at home initially, in books such as encyclopedias, and the public library last if she hadn’t been able to find sufficient information domestically. She explained her rationale: “I always look at home first ‘cos if I got to the library, got loads of books and then found loads of information at home I’d feel I’d wasted my time earlier.” In a few cases a preoccupation with convenience was taken to extremes. Some youngsters were so keen to use domestic books that they consulted items which were unsuitable and offered no relevant information. Ed⁹ (Y9-Y11/B-3/FG/8), looking for information on the beliefs of the major political parties for PSE work, began his searching with an inappropriate book in the home library on “man and society”. He spent considerable time examining this volume simply because it was readily available to him, not because he had identified it as a promising source. This is perhaps indicative of a conclusion reached by the Headteacher of School D-2 (HT/D-2/II/7), who admitted, “My experience tells me that kids are very much inclined to look for a quick fix.” The results of many other investigations, such as those of Heather (1984c: 74), Mancall and Deskins (1984: 8), Fourie (1996: 206), Gordon (1996: 31) and Hayter (1998: 57), have also drawn attention to the popular use of sources at home.

A less convenience-oriented strategy was taken by Tessa (Y13/B-3/II/75), who progressed from general sources and introductory articles to more detailed textbooks. Where youngsters took the

reverse approach and looked at less specialist sources in the later stages of their information-seeking, their results were sometimes discouraging. Paula (Y4/A-1/II/118), who consulted an encyclopedia just before concluding her work on pandas, was disappointed that she “already had” most of the relevant information it offered. Nevertheless, older informants who turned to such general sources in the later stages of a project with the aim of simply plugging gaps in the information they had were sometimes more satisfied. This was true of Harrison (Y12/B-3/II/85), who used “Encarta” after working with more detailed materials.

Some information-seeking took place almost as an afterthought, once writing up of the work had commenced. Linda (Y7/C-2/II/36), like Candice, reported examining books from the public library last, in her case after consulting “Encarta”, and indicated that within the library books obtained for her by her mother “there was nothing worth putting in that I hadn’t already put in”. According to Kuhlthau (1999a: 16), such a situation, in which the amount of new information encountered is easily outweighed by the amount of familiar material, is highly characteristic of the closing stage of an information search;

c) drivers and deterrents

- *information-seeking action as a response to “information shortfalls”*. Much action taken in response to school-related subject needs in the middle and high schools and involving the use of books, CD-ROM and the Internet was directed at gathering information to complement that which could be extracted from lesson notes or materials that had been made available in class. In School D-2, a Geography teacher commonly set his pupils questions and divided them into a “books group” and an “Internet group”. After using the resources allocated to them in class, they then sought further information in their own time (Jonty⁷, Y7-Y8/D-2/FG/10, Dirk, Y7/D-2/II/94, Kieron, Y7/D-2/II/96). A similar pattern was reported in relation to History work in School C-2 (Ruth, Y6/C-2/II/31). In the high school, such additional information was required in Science subjects to complement that conveyed in notes made during lessons and learnt through experiments (Gus, Y12/B-3/II/65, Duncan, Y12/B-3/II/84) and in Arts subjects to extend material accumulated in lessons in order to write essays (Joy, Y12/B-3/II/67).

Shortfalls in information provision within school also often emerged for teenagers pursuing self-development information. Julia¹¹ (Y9-Y11/B-3/FG/8) and Petra¹¹ (Y9-Y11/B-3/FG/8) explained how a need for information-seeking action on their parts emerged after they had met teachers and discussed “A” Level options. Sometimes opportunities for information-seeking were engineered by the school. When contemplating their future careers, Michelle (Y13/B-3/II/89) and her Sixth Form colleagues had attended “an open day at Newcastle Arena. All the universities had a stand there and if you wanted more you just went and asked them”. The visit had been arranged by the school to kick start the teenagers’ thinking about their post-eighteen futures. After the open day, however, they had to seek, on their own initiative, any further information they required;

- *meta-information sources*. Some youngsters’ information-seeking behaviour was shaped by meta-information. Frequently sources consulted in the early stages of an inquiry directed the user’s attention to other materials. When inquirers acted upon this meta-information, chains of information-seeking action were set in motion. Victor² (R-Y2/A-1/FG/11) was among the-youngest informants to recognise such direction from others and spoke of how, when watching cookery programmes on television, “they tell you to look on Teletext”. He would then consult the appropriate pages to learn more about the recipe

discussed on the programme. Several sources of meta-information took the form of other people. These included parents (Penelope, Y2/C-1/II/55, Bridget⁵, Y5-Y6/D-2/FG/3) and teachers (Clint, Y7/C-2/II/38, Michelle, Y13/B-3/II/89). Some of the latter alerted the whole class to particular sources but others responded to pupils' personal information-seeking problems by nominating, during one-to-one exchanges, certain materials which they believed the youngster should use. In several situations individuals approached for information suggested that the inquirer should consult other people. Bridget, wanting to identify the bones and muscles in the human body for homework, asked her mother. Unsure of some of them, she indicated that Bridget should ask her father and he, in turn, proposed using the Internet. Most meta-information sources directed attention to Web sites. This phenomenon has already been discussed in relation to the use of the Internet in section 3.2.2. The sources initially approached included magazines, leaflets and organisations contacted via the telephone. Here two distinct categories of meta-information sources were identified. Some were provided independently of the Web site to which the inquirer was being alerted, and the direction was based on an impartial opinion that the source could be of value to the user. Other materials, however, were produced by the same organisation responsible for the Web site and each was merely a different channel of communication for the same body;

- *delayed action.* A few informants reported major delays between experiencing an information need and taking action. Sometimes the time lag was the result of the individual waiting for more detail in relation to the subject of the need. Joshua³ (Y3-Y4/C-1/FG/6) who wanted to identify a bird that he had seen whilst birdwatching, had to wait until the photograph that he had taken of it was developed, and Olivia (Y3/A-1/II/114), who was keen to learn more about a Roman coin she had photographed in a museum, was delayed for the same reason. Just as Joshua and Olivia realised that, after "capturing" detail relating to the subject of their need, with time they would be better placed to respond to it, Julia¹¹ (Y9-Y11/B-3/FG/8) was waiting for forthcoming events to unfold. She was reluctant to commit herself to indicating her intention to take particular "A" Level courses without knowing her GCSE results, and postponed asking for guidance on her future studies until these were known to her.

The information-seeking action of others was delayed after adult intervention. As a pre-school child, Francesca (Y2/G-1/II/5) had been keen to develop her handwriting skills and thereby emulate her parents but was made aware by her mother that this was inappropriate as she was not yet sufficiently developed physically. Similarly, Karen (Y1/G-1/II/7), who longed to learn how to swim, was discouraged by her parents, who knew that she would be taught in two years' time via classes arranged by her school. These experiences are reminiscent of Edwards and Poston-Anderson's (1996: 216-18) discovery that some of the girls in their sample postponed information-seeking because it was "too early" or "not the right time". In the latter case the girls, like Francesca and Karen, were deterred by the fact that "others don't think I should start now";

d) communication of information

- *the role of the communications infrastructure.* Amongst communications aids, the telephone proved an important enabling device. As well as facilitating access to organisations providing specialist subject knowledge (Clint, Y7/C-2/II/38, Bill, Y7/C-2/II/39, Andrea, Y7/D-2/II/97), it enabled immediate contact to be made with friends for verificational information (Louis, Y8/D-2/II/103). Postal services

were also employed by some of those seeking information from distant organisations like embassies (Linda, Y7/C-2/II/36);

e) reactions to retrieved information

- **assessment of information quality and sources.** Although informants implicitly realised that for information to be useful it had to be relevant to the subject of the need, this was seldom stated as a specific criterion for information quality. Rather, the main issue raised was that of quantity, perhaps because this forms one of the most instantly measurable properties of information. A similar inclination among youngsters has been noted by Eastman (1986: 220) and Hirsh (1999: 1274). No informant indicated checking information for bias or even showed an awareness of the importance of doing so. Plentiful information was frequently considered synonymous with "good information" and, in the same way, the more information contained by a certain source, the more useful that source was adjudged to be. Dirk (Y7/D-2/II/94), who had used a children's encyclopedia for a recent homework assignment, reflected, "It was quite helpful because it had half a page of information" on the topic. In the same way, Dominic (Y4/A-1/II/116) commented in relation to a volume he consulted for a school project devoted to birds, "The book was that thick [*he indicated with his thumb and forefinger*] so I didn't need to use any other books." Conversely, Shane⁷ (Y7-Y8/D-2/FG/10) was disappointed at the lack of information on the subject of his work in a paper encyclopedia. "It only had one paragraph on volcanoes out of all the things it's got in it," he moaned. Shane contrasted this with a CD-ROM encyclopedia which he praised for having "loads of information that I've printed off". Nevertheless, some of the oldest informants did not dismiss particular sources as of low value even if they provided a limited amount of information. They were more concerned with the contribution each source could make in relation to others they were using. Pursuing more qualitative criteria than many of his younger counterparts, Harrison (Y12/B-3/II/85) indicated that, if a source covered particular areas that were omitted elsewhere, it was useful: "It doesn't really matter how undetailed it is because sometimes it just hits on something that other texts have missed out. So even really basic books can be good." Hirsh (1999: 1280) reports that, as their projects neared completion, many of her research subjects also determined the usefulness of information they encountered on the basis of how well it filled gaps;
- **corroboration of information.** Having located the information they required, few youngsters took action to verify its accuracy. Whilst Fieguth and Bußmann (1997) indicate that youngsters experience problems in assessing the value of information they have retrieved, and Friel (1995: 50) has found youngsters to be lacking in such evaluative skills, the results of this project suggest that for much of the time they do not even realise the need for such scrutiny. The research subjects of Pitts (1994: 296), McNicholas and Todd (1996), Kafai and Bates (1997: 109), Lyons et al (1997: 20), Wallace and Kupperman (1997: 23), Schacter, Chung and Dorr (1998: 848), Watson (1998: 1034) and Hirsh (1999: 1275, 1281) and the youngest participants in a study by Kobasigawa (1983: 267, 269, 270) have exhibited a similar ignorance, although the older inquirers in Kobasigawa's work showed a greater understanding, and youngsters taking part in work by NCET (1996: 9, 52) were aware of the need to question the accuracy of material. Graef (2000) describes the particular problems of evaluating information on the Internet, which, he believes, can be tested only by assessing it against one's own experience. Since many Whitley Bay inquirers had limited such experience, especially when they were attempting to find material on

topics that were new to them, it came as no surprise to the researcher that the youngsters so rarely exercised evaluative skills. Only information provided in two ways was checked at all - that supplied orally and that recorded as notes made by the inquirers themselves. In terms of the former, Joe (Y3/C-1/II/50), seeking information on static electricity, initially approached his mother and, after she had explained what he wanted to know, asked his father independently "just to see what he thought". In the same way, when Mandy (Y11/B-3/II/69) doubted the accuracy of the Mathematics instruction given to her by her father, she asked her teacher. Past experience of her father's abilities in this area had alerted her to the need to check. "I know what my Dad's like," she admitted ruefully. The doubts of some informants in relation to the accuracy of information conveyed by parents in this way should not, perhaps, be surprising given the findings of Hirsh (1999: 1271) that youngsters consider the information held in some formats to be more trustworthy than that held in others and, more specifically, if one accepts Bamberger's (1975: 21) principle that "written information is more trustworthy than oral". Nevertheless, the desire of Joe and Mandy to seek further information runs contrary to the belief of the DOMensions Consulting Party Ltd (1989: 3) that "young people do not perceive the information obtained from informal sources to be inaccurate". Whereas both Joe and Mandy verified their initial information by approaching another person, Bradley¹³ (Y12-Y13/B-3/FG/9) assessed the accuracy of his lesson notes by checking them against textbooks, knowing that the former might contain inaccuracies as a result of the speed with which they had been compiled.

By and large, youngsters seldom questioned the sources available for their use. Nevertheless, Paula (Y4/A-1/II/118) rejected outright the Internet as a resource after being told by her Class Teacher that it sometimes provided incorrect material, and a few were curious as to the limits of the information offered by certain sources. Neville⁸ (Y7-Y8/D-2/FG/10), for example, indicated using the "Ask Jeeves" Web site to inquire whether he should go swimming that evening or pursue a different activity;

f) language and terminology

- *vagueness and inaccuracies.* Many youngsters exhibited considerable ignorance when referring to the names of libraries, bibliographic aids and sources. Some, such as Curtis (Y3/A-1/II/115), Damien⁴ (Y3-Y4/A-1/FG/12) and Helena (Y6/D-2/II/20), unable to recall the name of the public library they used, found it easier to describe it in terms of its location relative to familiar landmarks. Their uncertainty might be attributed to the possibility that their parents talked simply in terms of "going to *the* library", without reference to its name. Tools and services within the building, such as the subject index, microfiche reader and inter-library loan facility, were also referred to in terms of their characteristics rather than by their names, which, again, were often unfamiliar to the youngsters. This tendency in relation to the subject index might stem from the fact that variations emerged between the name given to it in the public libraries and those used to identify comparable tools in some school libraries. In School D-2, the subject index within the school library was termed "the reference box".

Even more familiar bibliographic aids were described somewhat imprecisely by several informants. A contents lists was referred to by Larry (Y5/C-2/II/26) as "the start bit", and an index as "the glossary" by Rick⁷ (Y7-Y8/D-2/FG/10) and as the part in which "it's got like 'A', 'B', 'C', 'D' on all different pages and you just put your finger down" by Meredith (Y2/C-1/II/56). Whereas Meredith appeared genuinely uncertain as to the name of the tool, it is possible that both middle schoolers were

simply struggling to find the word they required on the spur of the moment during their interviews. Nevertheless, confusion over the differences between contents pages and indexes has also been detected among many primary-aged pupils by Heather (1984b: 218, 1984c: 49, 90) and among eleven- to twelve-year-olds by Paterson (1981: 14). Even some Whitley Bay high schoolers were ignorant of common IT terminology. Michelle (Y13/B-3/II/89), for example, did not recognise the term, “search engine”, although when one was described she was familiar with it.

Sometimes a corollary of IT facilities that were intended to increase convenience was that they actually promoted user ignorance by obscuring details pertaining to the processes in operation. Liana (Y13/B-3/II/90) reported how, when activating her Internet browser, the “find screen” of a particular search engine appeared immediately but, because she had not entered the address herself and the procedure was automated, she was unable to recollect the name of the engine being used. Similarly, the fact that Neville⁸ (Y7-Y8/D-2/FG/10) had tagged some Web sites as “favourites” and he could activate them by simply highlighting a label resulted in his being unaware of both their official names and their URLs. In addition to these uncertainties, on occasion actual misconceptions emerged on the part of informants within all school phases. Penelope (Y2/C-1/II/55) was convinced that the CD-ROM encyclopedia she employed was entitled “Windows ‘95”. Toby (Y11/B-3/II/87) confused Internet service providers with search engines, and Dirk (Y7/D-2/II/94) termed the latter “Web servers”. Such problems with names and vocabulary appear not to be confined solely to informants within this study. Tabberer (1987: 89) has drawn attention to similar issues, and Graef (2000) has highlighted the problem of how the “language of the new media uses codes and jargon which takes for granted that we all understand it”.

6 CHAPTER SUMMARY

6.1 General approaches

Information was obtained via

- the solitary methods of recall and reflective thinking;
- direct observation of real-world phenomena, events and locations;
- products not normally associated with information;
- “doing”, i.e. the repetitive practising of particular skills, exploration or execution of tasks in which youngsters could learn as the activity was undertaken;
- toys and games;
- “academic materials”, which might take the form of work for school (produced by either the inquirers themselves or elder siblings) or items created by adults, such as option booklets, university prospectuses, past exam papers and booklets, information sheets and worksheets prepared by teachers;
- books available domestically, either in youngsters’ own houses or from the home collections of others, such as friends or members of the family living beyond the parental home. Other books were bought specially to meet the need and ultimately became incorporated into a home collection;
- newspapers;
- magazines;
- posters;

- brochures, leaflets and catalogues;
- sheet music;
- CD-ROM software, which was very widely used for school-related subject information, particularly by youngsters up to Year Ten. General encyclopedias, especially “Encarta”, and subject-specific packages were consulted, usually in the informants’ own houses, although there was some CD-ROM exploitation in the homes of others and at school;
- the Internet. This was exploited for a greater range of purposes than CD-ROM, even though most needs were for school-related, interest-driven or consumer information. The Internet was often employed at school, as well as in the home, where parents frequently supervised, assisted or laid down ground rules. As a result of the greater detail and specialism of the material offered, the Internet was used more commonly than CD-ROM by older inquirers. Many, however, made major criticisms of the Web’s content and ease of use. Surrogate exploitation by adults on behalf of youngsters was more frequent than that of CD-ROM;
- community information points;
- television and video, which provided both “pre-packaged” information and broadcasts offering a substitute for first-hand experience. Teletext was also consulted;
- radio;
- published materials made available by the school, through various channels. Particularly in the first two educational phases, school libraries were seldom exploited. Teenage attitudes to and levels of use of the school library varied considerably from one pupil to another;
- books within the public library. This organisation was used to differing degrees by youngsters throughout the sample, although, where it was exploited, it was for only school-related subject or interest-driven information. Some youngsters regularly visited more than one public library. Favourite libraries were often those with the largest collections. The children’s section was used by library-going first schoolers, the adult department by high schoolers and a combination of both by many middle schoolers, often depending on the need. Numbers of visits to public libraries frequently declined when other, more favoured sources of information became available to youngsters. Substantial criticisms were made of public libraries, including unhelpful opening hours, the time necessary to make use of the organisations and unsuitable or overwhelming bookstock. Again, there was some surrogate use by parents on behalf of their offspring;
- museums;
- Tourist Information Centres but these were not always visited for their intended purposes;
- miscellaneous bodies, such as drugs awareness organisations, embassies and other establishments professionally involved in the subject of the youngster’s need;
- materials borrowed from parental workplaces;
- mail-based, special interest clubs;
- other people, who might be experts, people of convenience or individuals in a position comparable to that of the inquirer. People were consulted for a great range of purposes. Despite the fact that more reported information encounters involved the use of other people than any other type of source, inquirers taking this action were by no means always successful.

6.2 Exploitation of specific materials and organisations

6.2.1 Books

- Books were often selected on the basis of their titles and covers but some were chosen after examination of the chapter headings or cursory examination of the main text.
- Youngsters wishing to find specific information might read or flick through the book from the beginning or attempt to locate the relevant portion of the work without turning all the previous pages. The latter frequently involved the use of contents lists or indexes. Often the approach taken depended on the nature of the need or the thickness of the book.
- Some participants considered books to lack “user-friendliness” and found reading large amounts of text difficult.

6.2.2 Electronic materials

- Information held within CD-ROM resources was usually retrieved via a keyword.
- Some Internet sites were visited directly but others were accessed through a search engine. Many youngsters used different approaches on different occasions. Where search engines were used, most informants favoured one in particular, although some routinely used several even during one search. If a search engine were not employed and inquirers went to a certain site directly, the site might have been visited previously, and even be “bookmarked”, or be one about which they had learnt from another source and which they had not hitherto seen.

6.2.3 Public libraries

- The youngest users of the public library were very dependent on accompanying adults to locate information.
- Where inquirers showed a degree of ownership of the finding process, one of several approaches was taken. Familiar with the placement within the library of materials on the subject of the need, some youngsters went directly to the appropriate part of the collection. Others did not know the position of the desired section and combed the shelves randomly, consulted the labels on the shelves/walls, sought help from library staff or exploited an open access tool (almost always the subject index). A few users simply meandered through the aisles.
- Whilst sometimes the strategy pursued by an individual varied according to the circumstances, in any given situation the approach tended to be that believed to involve least effort.
- Some inquirers followed a preferred order of finding methods.
- Most were seeking any information on a certain topic, not a particular item.
- First and middle schoolers demonstrated considerable ignorance of both library terminology and the arrangement of books within the building.

6.3 Problem areas

- High levels of unmet needs were revealed. Some resulted from the fact that no information-seeking action had been taken, others from unsuccessful action. The latter often involved the use of inappropriate sources. As a rule, teenagers were more effective than young children in retrieving information for their own

interest, although both parties were usually eventually able to locate appropriate subject material for academic purposes.

- Even if needs were met, information was seen to be difficult to find where the inquirer was unsure of the “name” of the subject which could be used as a keyword, where interest was directed towards a general theme rather than a more specific topic or where material on a current matter was required for school.
- Frustration often arose if too much information were retrieved, if it were not known in advance of a search that what was sought actually existed, if content of an appropriate level could not be found or if all the desired information could not be located in one particular source.

6.4 The nature of information-seeking: generic patterns and observations

- Some information-seeking methods were almost indistinguishable from certain forms of learning.
- Inquirers were generally intent on finding sufficient information to meet the need whilst expending minimum effort.
- Many informants employed the same methods repeatedly when addressing needs of a particular type, even though the subjects varied.
- The first sources approached were frequently those considered most accessible.
- When, in the two highest school phases, material was necessary for academic purposes, much information-seeking was geared towards locating content to complement that readily accessible in sources produced or made available during lessons.
- Information-seeking was typically a step-by-step, convergent process, especially where books, CD-ROM and the Internet were involved.
- Meta-information sources played a key role in shaping the information-seeking behaviour of some youngsters.
- Faced with the task of obtaining material for a school assignment, a few older informants developed, either in advance of or during information-seeking activity, plans on how they would use different approaches or sources in concert.
- Preliminary planning in devising search words was, however, non-existent. Decisions were made at the point of need.
- Whatever source was used, only one, “obvious” search term was generally employed. This usually broadly matched the subject of the need, although some keywords much wider than the topic of interest were adopted.
- There was no reported use of Boolean logic.
- Several untaught, expedient information-seeking methods were applied.
- Considerable delays were often evident between a need being identified and action being taken where this did ensue.
- The communications infrastructure, especially telephone links and postal services, sometimes proved significant in facilitating contact between an inquirer and an informer.
- Quality of information was rarely assessed, except with regard to relevance and quantity.
- Seldom were steps taken to corroborate the accuracy of retrieved information.

- Many youngsters displayed considerable ignorance of names and terms associated with paper and electronic sources. Some were not known, whilst others were used incorrectly.

PART V:
PRODUCTS OF SECOND-ORDER SYNTHESIS

- Chapter Eighteen - Models of Information-seeking
- Chapter Nineteen - The Developmental Picture

CHAPTER EIGHTEEN

MODELS OF INFORMATION-SEEKING

This chapter proposes several models of information-seeking behaviour based on the experiences reported by informants. The first such model postulates a pattern common to a range of information-seeking activities, even when different sources or ways of gaining information are involved. Against this overall picture, four further models, more specific to particular forms of materials and resources, are presented.

1 THE MACROCOSMIC MODEL

Derived from the data collected within the study, the model shown in Figure H¹ indicates that information-seeking is essentially a convergent process involving the making of choices and taking of decisions. This convergence is particularly apparent when recognised information sources, both paper-based and electronic, are exploited, as the inquirer's progression often reflects the hierarchical manner in which information in these materials is structured.

The diagram shows how information-seeking behaviour is stimulated when a situation within a person's life gives rise to an information need. This need, which takes one of the thirteen forms listed, is closely associated with a more general "life aim" concerned with, for example, alleviating anxiety, making a decision, developing a greater understanding, finding out about a subject or solving a problem. After recognising the information need, the individual may or may not seek to address it. Inaction may result from a youngster determining that the need is insufficiently important for remedial behaviour, although young children, in particular, may simply fail to know how they can respond to satisfy it.

Any person opting to tackle the information need then embarks on behaviour that embraces several phases of action. If the unbroken, sequential path shown via black arrows in the diagram is pursued, the key stages will in most cases involve each of the following:

- a) adoption of one or more information-seeking directions;
- b) choice of a specific source or sources within the category or categories specified in the direction or directions nominated;
- c) efforts to locate the appropriate part or parts of the source or sources;
- d) attempts to access the desired information.

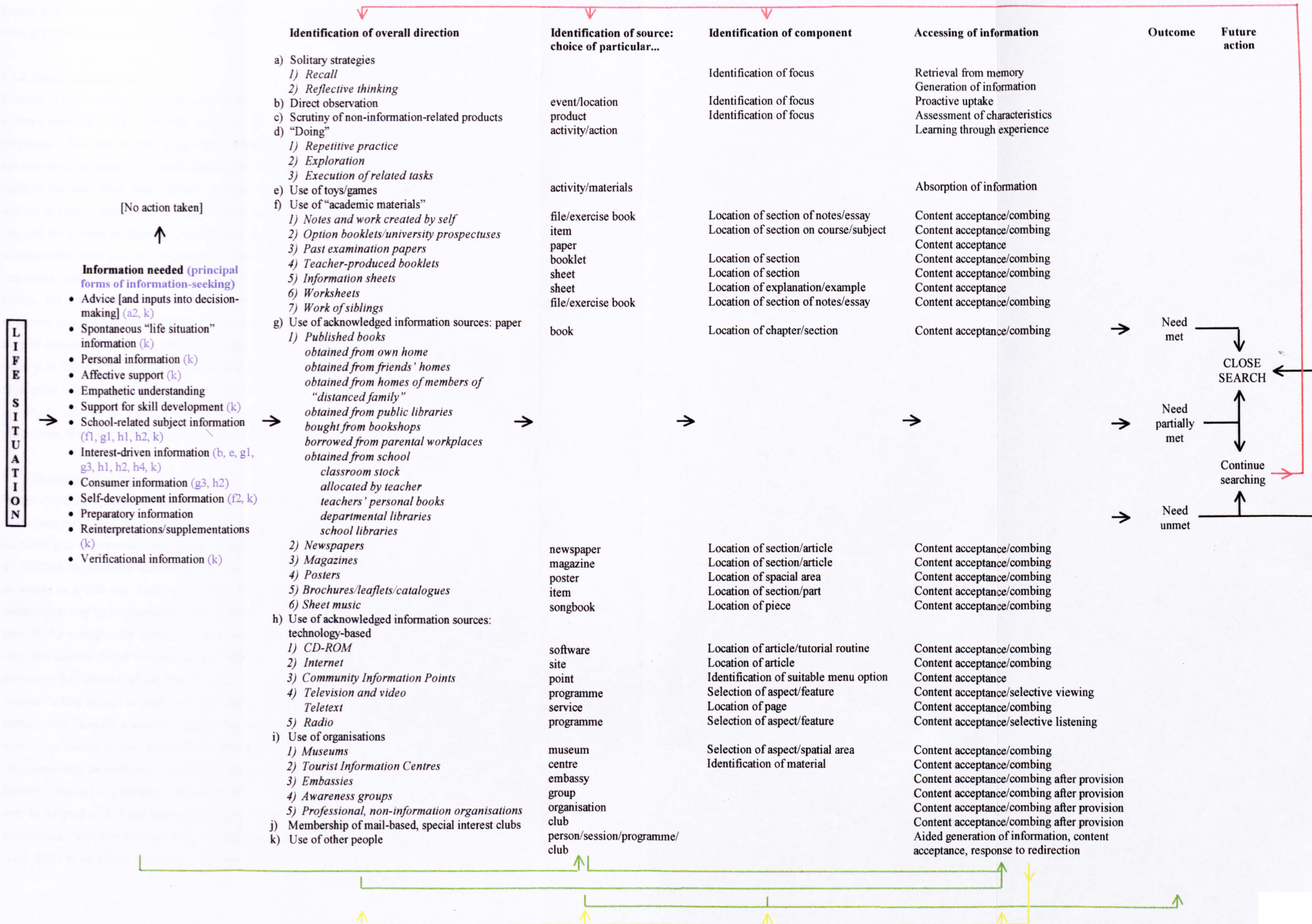
In Figure H¹, the direction or directions typically taken to satisfy specific types of need are shown in blue text adjacent to the need types. Other approaches listed in the second column may also be selected, however. Although the tabulated nature of the diagram perhaps implies that each of the four stages of action stated above is discrete, in fact each merely fulfils a subsidiary role within an ongoing process.

1.1 The unbroken, sequential pathway

1.1.1 Identification of overall direction

This first phase of action involves consideration of the nature of the information-seeking response to be made. Several approaches may be adopted in concert, including the exploitation of information sources in different formats. This stage may embrace the decisions to use material in a certain format and to secure appropriate

FIGURE H¹: GROUNDED MODEL OF YOUNG PEOPLE'S INFORMATION-SEEKING



matter from a particular location, such as the home, school or public library. It may also be determined that several different settings will be visited even when material of the same type is involved.

1.1.2 Identification of source

In terms of acknowledged information providers, this second stage of action refers to the inquirer's attempts to isolate a particular source name/title, such as a certain book, a given CD-ROM package or a specific television programme. This may be done in one of two ways. Firstly, a decision is taken to use a named source and efforts are then made to locate it, or, secondly, an appropriate item is selected from a larger collection, with the choice made at the point when that collection is being investigated. Several sources of the same type, or particular sources of various forms, may be isolated. Where a specific organisation, such as a named embassy, has been selected, the concept of "locating" it within the context of the source identification stage is less appropriate but a comparable action may be considered to be that of discovering the organisation's address and writing a letter requesting information. Where support for skill development is sought and teaching takes the form of group tuition, the notion of converging on a particular individual may, again, be unsuitable, especially if the youngster does not know even the name of the instructor before the session occurs. Source identification should here be considered to involve obtaining details of the relevant session or programme of sessions, where and when it is taking place and arriving for the event. Here attendance may in itself be envisioned to indicate a request for information in the same way as a letter to an embassy. The construct of "source" is thus flexible; indeed, in relation to "doing", it may take the form of the activity to be undertaken and, in terms of observation, the event to be seen or location to be visited.

1.1.3 Identification of component

Where one or more specific sources have been selected for use, this third stage of action marks the beginning of the inquirer's direct interactions with the content of the material or materials chosen. Here the user is intent on locating an appropriate "component", or part, of the whole source. It may be a chapter in a book, an entry in a CD-ROM encyclopedia, a particular tutorial routine within CD-ROM software that teaches a certain skill or an article on a Web site. Although the time lag between the location of a source and the investigation of its components may be considerable, especially when the information need is not urgent, this is not always the case. If, for example, the source is a subject book hitherto unknown to the user, examination of its chapters may immediately follow location of the work as these tactics may form part of the inquirer's strategy to determine the relevance of the item. In some cases the appropriate component may already be familiar to the inquirer before contact is made with the source on this occasion, since the knowledge that, for example, a certain book includes a suitable chapter may have been a factor in the volume's selection. The concept of source component is also applicable to the methods of recall and direct observation. In the former, the component may be considered to be memories of a particular experience, such as a certain video recording that has been watched or a fieldtrip undertaken, whilst, in terms of observation, some aspects of what is being seen may be adopted as foci and subjected to close scrutiny. Nevertheless, the notion of components is not always appropriate. Reflective thinking is an altogether more holistic process and the activity pursued in "doing" is itself likely to be highly focused on the basis of the need. In addition, where materials are provided for the

inquirer by an organisation, such as an embassy or awareness group, the user may welcome whatever material is provided rather than seeking a relevant component from the outset.

1.1.4 Accessing of information

The final phase of behaviour involves scrutiny of the component for information pertaining to the need. All content within the chapter, article, section, etc. or within the materials made available to the inquirer by an organisation may be accepted as useful, especially if the need is of a general character, but, where more specific information is required, greater convergence is necessary, with the user having to comb the content. Often this requires highly focused reading. Once more, there may be a significant delay between the identification of the appropriate part of the source and its examination in detail, although, again, the latter process may have been carried out within initial attempts to determine the source's relevance. In these circumstances, the text of a chapter may be read on several occasions - first to determine that the required information is indeed provided and subsequently to relocate it in preparation for information use.

Many forms of information-seeking do not involve the reading of text, however, and vary in the degree of proactivity required of the youngster in order to obtain the desired information. Reflective thinking demands that the individual generates information for him or herself, and the accessing of information in direct observation involves the youngster in searching for what he or she needs to know whilst looking at the event or location in question. A similar pattern pertains to the investigation of non-information-related products. Less active uptake of information is associated with "doing" and the use of toys and games. Here there is much learning through experience and information is "absorbed". The accessing of information after an approach has been made to another person may take a range of forms, depending on the response of the individual contacted. If material is presented to the inquirer orally, the content is accepted by the youngster, perhaps after it has been refined following a question and answer dialogue. Alternatively, if the adult provides cognitive facilitation, the inquirer may again have to generate information through his or her own reasoning abilities. The youngster may also be "redirected". This phenomenon is considered below in section 1.3.

1.1.5 Outcomes and future action

After an attempt has been made to extract the information sought, the inquirer will assess the degree to which encountered information has been useful. If sufficient appropriate information has been located, the need may be regarded as met and the search closed. Conversely, if no or not enough suitable material has been found, the need may be considered unmet or partially met respectively, and the decision must be taken either to conclude the search or continue it.

1.2 Short-circuits

Much information-seeking behaviour does not, of course, take the form of the straightforward, linear route described in section 1.1. There may be short-circuits (shown as green arrows in Figure H¹), in which at least one of the four stages of action is skipped. Some are advantageous, as the inquirer expedites his or her progress in a particular situation, generally as a result of the application of prior knowledge. Other short-circuits, however, arise from inquirer failure and emanate from the fact that he or she is temporarily thwarted and unable to meet the need satisfactorily, at least initially. Finally, further short-circuits reflect a less convergent

information-seeking approach and no real benefit or detriment results. These may merely be the product of a different way of working. Figure I¹ lists all forms of short-circuits that were seen to be made and gives examples of circumstances in which they emerged. Those of a beneficial nature are indicated with a “+” sign; those resulting from problems are prefixed with a “-” symbol and those that may be considered neutral are preceded by a conventional bullet point.

FIGURE I¹: SHORT-CIRCUITS WITHIN THE MODEL

| Short-circuit | Illustrative scenario |
|--|---|
| Information needed → identification of source | + A youngster with an information need does not consciously adopt an overall direction as he or she is from the outset aware that a particular source, such as a named book, a certain CD-ROM encyclopedia (often “Encarta”) or a specific person, will, or is likely to, meet the need |
| Identification of overall direction → accessing of information | • A youngster who opts to pursue the information-seeking direction of recall draws on everything he or she knows in relation to a topic with no concentration on a specific focus |
| Identification of source → accessing of information | - A youngster consulting a book for highly specific information makes no attempt to locate, through a selective access approach, a chapter containing material appropriate to the need, and opts instead simply to comb the content • A youngster with a general interest in a subject locates a book the content of which matches his or her interest and it is read from the beginning |
| Identification of source → outcome | - A youngster is either unable to locate within a collection a suitable source of the particular type that he or she has nominated or is unsuccessful in finding a specific desired title. The need is consequently unmet, at least temporarily |
| Identification of component → outcome | - A youngster cannot locate within a selected source any part that may provide the required information. The need thus remains temporarily unmet • A youngster locates an article pertaining to the subject of a school-inspired need but does not read it further and simply shows it to his or her teacher |

1.3 Redirections

When another person is approached for information, he or she may respond by redirecting the youngster’s search in one of several ways, for example by suggesting that the inquirer follows a different information-seeking direction, by referring him or her to another source or by providing items for the youngster’s use. Similarly, some materials, like magazines, draw attention to other sources, such as Web sites. In these circumstances, the action then taken by the inquirer may be considered a “subsearch” and the appropriate redirections are represented as new routes (shown as yellow arrows) into the model.

1.4 Recursions

Like negative short-circuits recursions result from inquirer failure. They are shown as red arrows in Figure H¹. A recursion is prompted when the youngster realises that his or her efforts at a particular stage have made either no or limited progress in satisfying the need and the recursion takes the form of the renewed

information-seeking activity upon which the inquirer embarks. This may involve identifying a different overall direction, immediately selecting another named source or seeking a further component of the source previously consulted and undertaking the actions within the model from the point at which the inquirer has re-entered it.

1.5 The model's relationship with previous work

Kuhlthau (1988a: 236-40), Ellis (1989: 178-200), Marchionini (1989a: 54), Westbrook (1993: 543-46), Fourie (1995: 133-34), Kari (1998) and Wilson (1999: 265-66) have each identified a pattern that pertains across multiple instances of information-seeking behaviour. The model postulated here is an attempt to address the dimensions of similarity *and* difference. The columns within Figure H¹ represent common, generic features of information-seeking, although admittedly the concept underpinning a particular stage fits some circumstances more appropriately than others, whilst the rows relate more closely to individual needs, information-seeking directions and sources.

The model differs from the sequences of information-seeking behaviour identified by many other writers in that, with their direct references to individual types of needs, directions and sources, the phases are more specific than those in previous work. This is largely a result of the fact that some of the study's focus questions were themselves highly concrete, and the model may be regarded as one element within an overall attempt to provide answers. Although the model unites the concepts of information need and information-seeking, in comparison with others much of its scope is somewhat limited as it concentrates mainly on the activities relating to Kuhlthau's (1988a: 240) "information collection" phase and Choo's (2000: 251) "information-seeking action" stage. The model's iterative nature and the recognition that inquirers do not always follow a straightforward, unbroken progression are, however, also characteristic of information behaviour described by Marchionini (1989a: 54) and Kuhlthau (1999a: 13).

In terms of their constituent elements, the sequences that most closely resemble that presented here are those of Fourie (1995: 130) and Kari (1998). Figure J¹ indicates how their stages may be understood to approximate to those of the Shenton model. Perhaps the most radical difference between the sequences of Fourie and Shenton lies in the placement of evaluation. In the former, it is envisioned as a summative activity, whilst, if evaluation is believed to include the assessment of material encountered for relevance to the need, in the latter it can be regarded as characteristic of stages four, five and six.

FIGURE J¹: STAGES OF INFORMATION-SEEKING IDENTIFIED BY SHENTON, FOURIE AND KARI

| Shenton's stages | Fourie's stages | Kari's stages |
|-------------------------------------|--|--|
| Life situation | | Situation |
| Information needed | Formulation of a need | Information need |
| Identification of overall direction | Selection of information channels | Information seeking - element one: information seeking strategy |
| Identification of source | Location and examination of information sources | Information seeking - element two: information source |
| Identification of component | Tracing and retrieval of information; | |
| Accessing of information | Evaluation of the information in terms of the original need | Information seeking - element three: received information |
| Outcome | | |
| Future action | | |

2 MICROCOSMIC MODELS

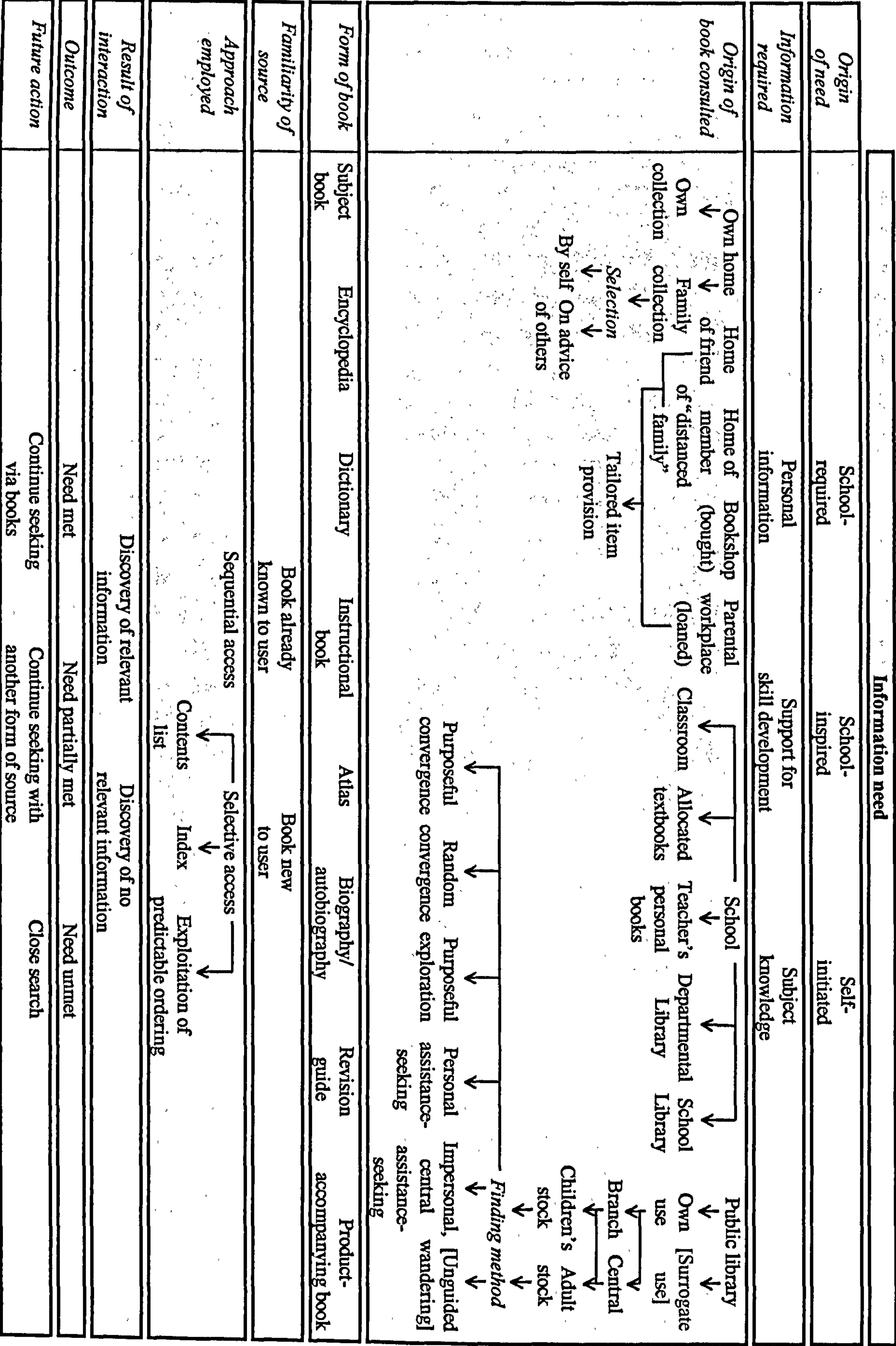
One of the project’s focus questions refers to the investigation of patterns in the manner in which information sources are exploited. The macrocosmic model provides some insight into this area but the study also revealed more specific patterns pertaining to individual types of material that were believed to be too source-particular for inclusion in an overall model. Although they are described in the section of the thesis reporting the study’s findings, it was considered that details had been revealed of so many aspects of the use of books, CD-ROM software, the Internet and other people that these should also be represented separately in microcosmic models (shown here in Figures K¹, L¹, M¹ and N¹). These should be seen against the prevailing backdrop provided by the macrocosmic model.

In all four microcosmic models, a grey rectangle is allocated to each of the aspects that emerged in relation to the use of a given type of source. The order in which these aspects are arranged may be considered to reflect a typical information encounter, although it is not hard and fast. Within each rectangle, every variation exhibited by the entirety of inquirers exploiting this form of source is indicated. Only variations actually reported by the informants are included. Others, possible but not articulated, are omitted.

2.1 Books (Figure K¹)

An information need triggering book use may arise from homework, from a desire to know inspired by school or from an interest entirely unconnected with such studies. The material sought is likely to take the form of subject knowledge but it may also be personal information or content to support skill development. The book consulted may be obtained from one of numerous locations, although it is not necessarily used in this setting. It may be found within the youngster’s own home - in either his or her own stock or that of another member of the household (described in Figure K¹ as “family collection”). In the latter case, an inquirer may select an item without guidance or he or she may have received advice from a member of the family as to a suitable volume. A book may also be bought from a bookshop specially to meet the information need. Where a work is located

FIGURE K¹: GROUNDED MODEL OF INFORMATION-SEEKING VIA BOOKS



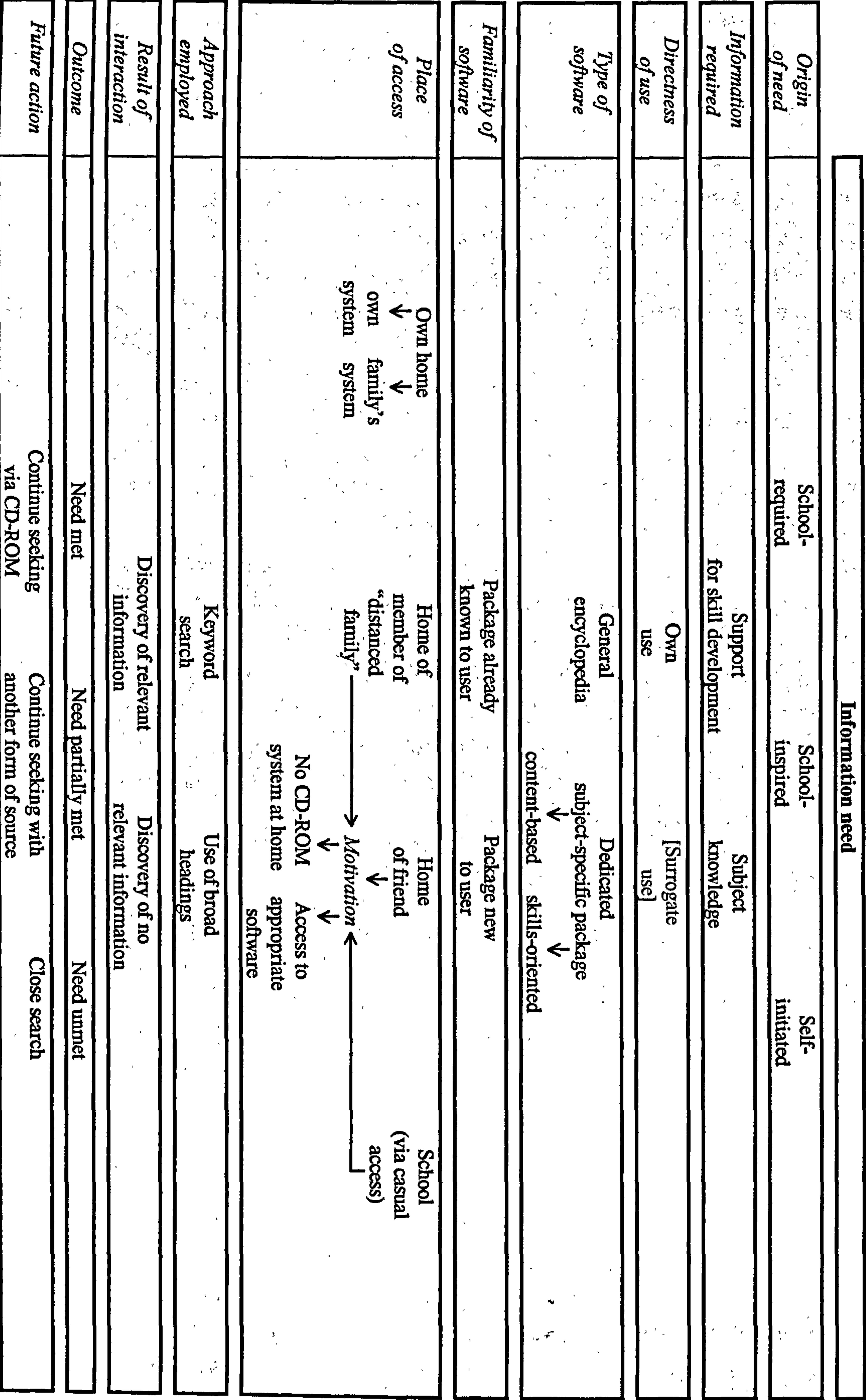
in the house of a friend or a relative not living in the parental home or is borrowed from a parental workplace, it is unlikely that the youngster will make a choice from a collection in the same way as he or she may domestically. Typically, the provider of the book simply makes available from the material available to him or her an item which, it is believed, may meet the youngster's need as it has been articulated. The most common organisations from which books are secured are the school and the public library. The former includes a range of channels - books normally found in the classroom, textbooks allocated by the teacher, the teacher's own books, the departmental library and the school library. Youngsters may obtain for themselves volumes from the public library or these may be borrowed on their behalf by a surrogate, usually a parent. The latter situations are beyond the study's scope as they do not deal with the information-seeking behaviour of the youngster him or herself. Where a personal visit to the public library is made, the individual may go to the local branch or the central library and exploit either the children's or adult stock. One of five methods may be employed to locate material - purposeful convergence, random convergence, purposeful exploration, personal assistance-seeking or impersonal, central assistance-seeking. Another form of library behaviour is unguided wandering, although this is perhaps too unfocused to be considered a finding strategy.

A wide range of types of volume may be consulted - subject books, encyclopedias, dictionaries, instructional books, atlases, biographies and autobiographies, revision guides and books accompanying products. A selected book may be already known to the user as a result of previous experience or be entirely unfamiliar. The content is accessed either sequentially or selectively, the latter via the contents list, the index or the application of the inquirer's own knowledge in exploiting the book's arrangement in terms of the chronology of what is covered or the alphabetical arrangement of entries. Depending on the information that the inquirer discovers, the need is considered met, partially met or unmet and this outcome forms an input into the user's decision as to future action. If he or she is satisfied or opts to look no further, the search is closed but, if the reader requires more information and is prepared to make an effort to find it, the search resumes with either books or an alternative approach.

2.2 CD-ROM software (Figure L¹)

A need for information inspired by activities at school, required for academic obligations or arising purely from personal interest may prompt the exploitation of CD-ROM software. The information may take the form of support for skill development, although it is more likely to involve subject knowledge. The inquirer will probably use the CD-ROM resources personally but in rare instances they may be employed on the youngster's behalf by a surrogate, usually a parent, who will probably secure a printout of material he or she considers appropriate to the need. General encyclopedias are commonly used but the software may be more subject-specific, and either provide specialised knowledge or teach skills. Many packages exploited by youngsters are already familiar to them through previous experience, although some will be new. Much use of CD-ROM takes place in the inquirer's own home, via either his or her own computer or that owned by another member of the household. Where an individual or his or her family does not possess a suitable computer system or where an external provider offers access to particular software that may be useful in meeting the need, the inquirer may exploit CD-ROM resources at the house of a relative living away from the parental home, at the home of a friend or, in the case of teenagers especially, at school in casual access sessions. In all cases a keyword

FIGURE 1: GROUNDED MODEL OF INFORMATION-SEEKING VIA CD-ROM SOFTWARE



approach is more likely to be adopted than the use of the broad headings that much CD-ROM software offers as access points. The latter are generally exploited only during early exploration when a package has been recently purchased. The nature and extent of the information retrieved determine the degree to which the inquirer considers his or her need to have been met and, as with books, this conclusion provides one input into decisions relating to the terminating or continuing of the information search.

2.3 The Internet (Figure M¹)

Use of the Internet may be stimulated by a need either in some way associated with school or emerging independently. One of several types of information may be required - personal information, support for skill development, subject knowledge or consumer information. As with CD-ROM software and public libraries, the Internet may be used either personally or by a surrogate, once more usually a parent, who is again likely to obtain for the end-user a printout of an appropriate article should one be found. Where the youngster exploits the Internet in person, the interaction generally takes place either at home, via a computer that may be the inquirer's own or belong to another member of the household, or at school, although access available in Internet cafés, parental workplaces and houses of friends may also be exploited. Youngsters' interactions with the Internet may or may not be conducted with the assistance and/or supervision of others. As a general rule, the younger the user the greater the adult involvement. Two search approaches may be taken: a visit to a particular site may be made directly or a site may be accessed after use of a search engine. In the latter case, the inquirer may go to all sites appearing on a list of results, to all listed sites until sufficient information has been gained, to all listed sites meeting specific criteria or to all listed sites meeting criteria until enough information has been found. Any site visited may be already known to the youngster as a result of past experience or be unfamiliar. The site(s) accessed on a particular occasion may be consulted regularly, especially if the subject is of ongoing interest, or use may be more isolated. Finally, once more, the inquirer must determine how far any retrieved information meets the need. Again, this influences the information-seeking action to follow.

2.4 Other people (Figure N¹)

The information needs responsible for youngsters' approaches to other people vary in origin. Some are motivated by a desire or necessity to find information on school curriculum topics. Others result from non-academic impositions and a few emerge from circumstance. Many, however, are entirely self-initiated. The types of information sought are even more numerous and diverse, embracing advice, spontaneous "life situation" information, personal information, affective support, empathetic understanding, support for skill development, subject knowledge, self-development information, reinterpretations/supplementations and verificational information. In most cases the interaction involving the inquirer and the person approached is face-to-face, although sometimes a telephone conversation takes place or the informer may provide answers to questions in writing and mail these to the inquirer. The informer may either be familiar to the youngster or be someone never previously met. He or she may be a member of the family, such as a relative within the home or another living away, or a friend, teacher, coach, another type of professional/worker or one of the public at large. One-to-one contact between the inquirer and the informer is common but, where the imparting of

FIGURE N¹: GROUNDED MODEL OF INFORMATION-SEEKING VIA OTHER PEOPLE

| Information need | | | | | | |
|---|--|---|--|---|--|--|
| Origin of need | School-required | Otherwise imposed | School-inspired | Self-initiated | Circumstantial | |
| Information required | Advice "life situation" information | Personal information Affective support Empathetic understanding | Support for skill development | Subject knowledge Self-development information | Reinterpretations and supplementations | Verification information |
| Mode of contact | Direct, face-to-face | | | Distanced | | |
| Familiarity of person approached | Person already known to user | | | Person new to user | | |
| Specific individual | Parent at home | Sibling at home | Member of "distanced family" | Friend | Teacher | Coach Other adult professional/worker Member of "the public" |
| Individuality of contact | Within a group | | | One-to-one contact | | |
| Regularity of contact | Repeating | | | Isolated | | |
| Response of person approached | Direct, unaided provision | Direct, aided provision | Provision of materials forming information | Direction to provided sources | Cognitive facilitation | Access provision Referral |
| Youngster's involvement if information is provided orally | Passive reception | | | Via question and answer dialogue | | |
| Appropriateness of content | Relevant | | | Irrelevant | | |
| Outcome | Need met | | | Need partially met | | |
| Future action | Continue seeking via other people | | | Continue seeking with another form of source | | |
| | | | | Close search | | |

information takes the form of a skills lesson delivered by an expert, the youngster is more likely to be one of a group. If the need is ongoing, as may be the case with support for skill development, the youngster may seek information from the informer regularly in this way, although the approach may, of course, be of a more one-off variety. The person may respond to the inquirer in one of several ways, offering direct, unaided provision, direct, aided provision, provision of materials forming information, direction to provided sources, cognitive facilitation, access provision or referral. Where information is supplied orally, the inquirer either simply attends to the content as it is delivered or, by contributing to a question and answer dialogue, influences what is provided. Finally, the youngster considers the information that has been disclosed and determines whether or not the need has been met before either ending the search or continuing it, perhaps through a renewed approach to other people or maybe via a different method.

CHAPTER NINETEEN

THE DEVELOPMENTAL PICTURE

This chapter draws on the data elicited and analysed in the study to explore how patterns were seen to change during childhood with regard to the three content areas addressed in the project. Separate sections are allocated to understanding of the term, "information", to information needs and to information-seeking action.

1 IN RELATION TO THE TERM, "INFORMATION"

1.1 First schoolers (four- to nine-year-olds)

The word, "information", is unfamiliar to children of Reception age. They are unable to read it and it holds no meaning for them. Many, however, can comprehend the concept of "finding out", and indicate ways in which this may be done. It is frequently described in terms of asking familiar people about matters of which the youngsters have experience, and actual conversations of this type may be recounted. Understanding of the term, "information", develops rapidly over the next two years. Some Year One pupils can read the word, and, by the following year, it is commonly read without problems. When they leave first school, all youngsters are likely to be able to read it successfully. There appears a close correlation between the ability to read the word and the possession of an appropriate understanding.

Although some youngsters in Year One can demonstrate their comprehension of "information" by drawing pictures which, to them, relate to the term, this is more common in Year Two. Typically, associations are made between the concept and sources. First schoolers tend to link information with books and, especially in Years Three and Four, computers. The youngest children will be familiar with computers through school and perhaps the home but may be oblivious to their information-providing capability. CD-ROM discs may be entirely unknown to some of them. Even early years youngsters with an understanding of what the word, "information", involves are unlikely to use it of their own volition. Whilst its employment becomes more widespread as children move up the school, first schoolers typically talk in terms of processes, such as "finding out" or "getting to know about", and use of such a product-oriented word as "information" remains rare.

The ability to offer a rudimentary explanation of the concept of information usually begins in Year One. Early attempts tend to be grounded in the assumption that information consists of facts and explanations, which are communicated via text-based sources. Information may be considered to take the form of what is sought by an inquirer with a need. In their definitions, youngsters recognise that information is gained through action or "finding out" processes. Some early years children have a genuine "feel" for the word but, owing to lack of linguistic skill, may find it hard to convey this to others. Indeed, they may consider it less taxing to indicate what the term means to them by stating specific facts as examples of information. Although some may regard fiction as a form of information, such an opinion is rare. First schoolers are generally quite rigid and dogmatic in their definitions but appreciate that information may pertain to a variety of topics.

In the later first school years, information may be understood as characteristic of particular environments, especially schools and libraries, and even the oldest children struggle to conceive of information sources beyond books, computers and other people. Where youngsters indicate computers to be providers, they are usually referring to the hardware per se, and seldom specify particular applications, such as CD-ROM and

the Internet. Nevertheless, opinion diverges as to whether or not all computers can offer information and disagreement persists in the middle school phase. Youngsters are prone to assume that people who provide information are likely to be subject experts, and, where specific types of information-providing books are quoted, these are often formal textbooks. Again, a comparable view emerges in many middle schoolers. Awareness of different forms of books is limited in the first school, and even youngsters in Years Three and Four may flounder when attempting to describe the essential characteristics of common non-fiction works like encyclopedias. Any providers beyond books, computers and other people that are highlighted by first schoolers are likely to come to mind as a result of first-hand experience of their use.

1.2 Middle schoolers (nine- to thirteen-year-olds)

Whilst middle schoolers, like their junior counterparts, consider information to provide meanings that are imparted to other people via sources and it continues to be viewed as material that is new to an inquirer, some youngsters recognise that the term may be applied to what a person already knows. One of the biggest shifts is that information is no longer associated purely with text. This coincides with youngsters' increasing exposure to other information forms. Moreover, since their vocabularies are developing rapidly, they are now better equipped to convey the meaning of the term, "information", via synonyms. Nevertheless, when defining the concept's boundaries, the "rules" that middle schoolers may form are often scarcely more sophisticated than those of younger children.

As their experience of books and computers grows, youngsters frequently continue to associate information with these providers and gain more understanding of how the latter may offer information through CD-ROM and the Internet. In comparison with junior colleagues they can identify a greater diversity of ways in which information can be provided for or gained by an inquirer. Associations with information may also become more abstract. Information may be seen to be connected with idea generation and the "i" information signs commonly found in the world at large. The term itself is more likely to be used by middle schoolers of their own volition than by their younger counterparts. In this implicit context, it is typically equated with subject knowledge again obtained from sources such as books and computers. Use of the word, "stuff", to mean "information" is very popular among middle schoolers, although it is employed in a wider range of senses.

1.3 High schoolers (thirteen- to eighteen-year-olds)

High schoolers have complex understandings of the term, "information", frequently involving networks of ideas that they may struggle to convey visually. Use of the word by youngsters in their own speech remains common and the assumptions behind its employment vary little from those in the previous phase. Youngsters continue to employ the term in very narrow contexts. The scope of their explicit understandings, however, varies hugely from one individual to another, indeed more so than in either previous school phase, and it may be difficult to identify any patterns within the high school phase that are specifically age-related. Some youngsters have highly trenchant views that are limited in scope as to what information embraces but many are much more open insofar as information forms, types and sources are concerned. The broadest definitions offered by high schoolers may indicate a variety of forms in which information may be represented, and include not only text, and teenagers may consider information to involve statements of both fact and opinion. The issue of whether or not fiction can be regarded as information still provokes disagreement, although the

common view is that it cannot. High schoolers remain inclined to think of information as that which is extracted from sources but often identify groups of these as well as individual providers. They may, for example, be well aware of the role of “the media” in this context. Teenagers may realise that the potential sources of information are almost limitless and those they quote are intended to be illustrative rather than total. High schoolers have learnt that people who provide information are not confined to experts. They may, for example, be friends. Teenagers often see that those most suitable for supplying information vary depending on the need. As high schoolers have larger vocabularies than their younger fellows, they tend to be adept at readily identifying synonyms for information. Perhaps the most significant pattern in this phase, however, is the manner in which high schoolers recognise the effects of information on the individual. Many appreciate that information enhances one’s knowledge state. Whereas younger children generally describe information-related processes that are outward and observable, high schoolers are more aware of processes that are cognitive and internal.

2 IN RELATION TO INFORMATION NEEDS

2.1 First schoolers

In the first school two broad types of information needs are identifiable - those that are particular to young children and those which continue into subsequent school phases. Having moved from nursery education to mainstream school, four-year-olds are very heavily dependent on adults and require guidance on many issues. In comparison with matters in relation to which older people seek advice, they may appear trivial, although to the youngsters they are equally serious. Such advice needs, which rarely involve school directly, are often spontaneous, emerging from unexpected situations. They may pertain exclusively to the youngsters themselves, such as what to do when they feel unwell, or to their interactions with others, like strategies to regain the friendship of peers after setbacks. Needs of this nature continue into youngsters’ middle school years. First schoolers may also often require guidance on dilemmas such as which of two pleasurable activities they should pursue at a given time. Again, needs of this kind persist into much later years, although, over time, children become more confident in making their own decisions.

Emotional support is required by first schoolers in a range of areas. Anxieties especially result from situations that deviate from the norm and, once more, this is true of youngsters in all phases. They worry over matters such as minor ailments, disputes with friends and the welfare of others familiar to them, especially pets and close members of the family, and may find it difficult to cope with situations they consider unpleasant but which they have to face in order to appease others, like visits to the dentist. In the early years, few anxieties relate to academic work but the pattern changes as youngsters move through the first school and work in class becomes more demanding, even though throughout this phase relatively little homework is set. Older pupils develop considerable concerns over class tests. As well as experiencing high levels of need in terms of emotional support, the very youngest children, usually girls, may require empathetic understanding of others, wanting to know “anything and everything” about their best friends. Such needs are primarily confined to Reception youngsters and quickly dissipate over time.

Many of the earliest school-related information needs experienced by first schoolers involve skills and tend to be subject-based rather than generic. This remains true throughout *this educational phase*. Skill needs often involve Mathematics, which continues to generate many needs across all phases. At this stage most

pertain to basic "number crunching". Older first schoolers become increasingly aware of their shortcomings in school-related skills and identify for themselves their areas of weakness. These may relate to certain subjects or specific situations. Once more, such self-awareness continues into middle and high school. Much skill-related information is required to reinforce that already conveyed in routine classroom teaching. During the first school years, many youngsters work hard to develop their academic skills in order to win the approval of others or emulate older members of the family.

Subject knowledge needs for school are minimal among early years children, perhaps because lack of reading ability restricts the extent to which they can gain an awareness of matters outside their immediate worlds. Many of the "themes" addressed in class during Reception and Year One are limited to areas in which the pupils have direct experience. Around the age of six, however, youngsters begin to investigate in class more general historical and geographical topics that are less rooted in their own lives. Although most of this work is tackled at school, youngsters may be asked to find factual information in their own time. Often the information required is general and unfocused. As pupils move through the first school, the balance tends to shift so that larger amounts of work are done at home. This pattern continues in the middle and high school phases. Usually what is required by the youngster is necessary for re-presentation in written work. Some individuals, stimulated by what they are learning in the classroom, feel an urge to know more about the subjects and undertake considerable work of their own volition at home. Again, this trend increases as the youngster moves up the school and even into middle school. It particularly applies to historical topics studied over a prolonged period in the classroom, and themes featuring some element of military conflict are highly popular among first school boys. An early indicator of such interest often takes the form of young children bringing to school materials pertinent to the subject under scrutiny. Nevertheless, even if a subject is much enjoyed by a pupil at school, he or she might not necessarily wish to pursue it outside the classroom.

"In the head" needs gradually assume growing importance. Typically, they involve learning assigned spellings, "number bonds" and, later, multiplication tables. Class tests assessing pupils in relation to these and other areas of curriculum content become more and more common as pupils move through the first school phase.

Outside school, children as young as four and five are keen to develop their skills in areas of interest to them. These often pertain to the operation of artefacts given to them as presents. Most skills that do not relate to toys involve some form of vigorous physical effort at this stage. Youngsters of five to six may become interested in sporting activities and seek to increase their skills beyond those associated with egocentric play. Football is commonly taken up by boys of this age, and many enjoy making and modelling activities.

Children of four and five have a wide variety of recreational pursuits but few include any significant information-requiring element. For many, needs for facts emerge in response to curiosities and problems that arise spontaneously in their lives, usually in relation to themselves, familiar people and the immediate environment of the home and the locality. Needs also pertain to domestic and classroom routines and procedures. Subject information needs in connection with other places may be stimulated as a result of youngsters' ties with them, and particularly visits. Just as skills information needs relating to sport tend to emerge in boys at around six years of age, so too does subject knowledge involving this area. The initial stimulus may be provided by television coverage. This prompting often marks the beginning of interests relating to the wider world, and these increase in later years as, through reading and broadening experience,

youngsters want to learn more about a range of diverse subjects. Whilst early subject knowledge sought by girls often relates to animals, themes of competition and even aggression permeate the enthusiasms of many boys. Alongside sport, interest may be shown in savage animals, military conflict, natural/supernatural phenomena, machines and transport. As youngsters are only just starting to develop a fondness for such subjects, low level, introductory information is required. In sport, this may take the form of learning the rules of a game or becoming familiar with major teams and players, although some children simply want to "know more about" a broad area. Needs for in-depth subject detail are common but quick reference "facts and figures" also hold appeal for many older first schoolers. Specific films, television programmes and popstars catch the imagination of some youngsters, who may want further information about them, although others simply enjoy such productions or music without feeling the urge to know more. Highly motivated youngsters in their later years of first school may undertake their own projects on topics of interest and, again, this behaviour remains until well into middle school.

2.2 Middle schoolers

Many patterns within the first school phase continue into middle school. Youngsters still, for example, require advice in relation to problems in their everyday lives. Indeed, such needs may increase as youngsters are now becoming more independent and direct parental involvement in particular aspects of their lives begins to diminish. This contrasts with life during the first school years when children were shielded from many problems by their parents, who anticipated difficulties before they arose or resolved them so their offspring was not directly affected. With youngsters making more and more decisions for themselves, they may require advice on whether or not to accept particular challenges relating to school or leisure pursuits. The former may involve more intelligent youngsters in taking decisions regarding the sitting of additional SATs papers during Year Six. In this and other situations they need not only guidance but also factual information to inform their decisions. As they begin to assume roles in relation to others, they may require advice on courses of action that affect those known to them, such as the buying of presents at appropriate times of the year.

Situations in which middle schoolers require emotional support may differ radically in nature from those of first schoolers. Typically, they are less troubled by minor ailments and small deviations from usual events and routines but concerns may develop over self-image, and problems with bullying are not uncommon. New challenges, some of which youngsters take on of their own volition, bring further anxieties. Whilst they welcome the opportunity to demonstrate their talents publicly, the responsibility of their involvement may weigh heavily on them. Concerns also develop over situations in which they feel they have no control, such as changes in family circumstances, and academic pressures. Anxieties arise in relation to homework, which is taking on an expanding role in the lives of middle schoolers, especially in terms of completing it on time and to an acceptable standard. Oral situations involving the delivery of talks are frequently found to be traumatic. National tests also cause apprehension with many youngsters becoming aware, for the first time, of the importance of SATs, taken during Year Six, and unease increases when their significance is stressed by teachers. Tests of this kind are not new to pupils, however. Indeed they would have experienced them during Year Two, although youngsters of this age are generally oblivious to their importance.

Information needs pertaining to the development of mathematical skills continue to be felt but they vary widely from individual to individual because youngsters now work at very different levels. Skills are

necessary to complete homework, as well as classwork, in addition to tackling SATs. Youngsters recognise for themselves the need to develop generic skills, chiefly in relation to time management and oral presentations. In these and other areas they are often highly adept at identifying their own deficiencies.

Curriculum areas for which pupils need subject-based information are more diverse in the middle school. Youngsters tend to be taught in lessons allocated to discrete curriculum areas and cross-curricular projects are rarer. Whilst needs arise in connection with traditional school subjects, information is also required on matters such as societal problems and real-world issues. Furthermore, increasing amounts of work for school are done in youngsters' own time, and this necessitates growing levels of independent information-seeking activity. In short, more work is done outside school for more subjects. On occasion, pupils may be given the opportunity to investigate any topic of interest to them. Although initially enthusiastic in this work, some lack persistence, are readily discouraged by initial difficulties and quickly change their topics instead of persevering and trying to overcome problems. For other assignments, information may be required to complement or extend what has been provided in class. As at first school level, the overwhelming majority of instances involve the acquisition of purely factual material, which is again principally needed for representation. Here, however, a more applied approach is often demanded since it may be necessary to answer particular questions rather than simply set down anything that can be found out about a general area. Information may also be required for more oblique use either in writing that includes an imaginative element or to inform the making of products and stimulate ideas. Away from school, many youngsters still pursue topics studied in the classroom, and those associated with history remain popular. Similarly, subjects involving conflict and warfare continue to hold appeal for many middle school males.

"In the head" information needs emerge in relation to a range of internal school tests across many curriculum subjects, with some teachers testing their pupils after completion of work on each topic addressed in their lessons. Further demands are created by SATs.

As in the first school, sporting skills are developed by many boys in their leisure time. However, the sports in connection with which skills are sought are more varied because youngsters receive opportunities to experience a greater range of activities. Gender differences in the sports taken up by youngsters are often apparent. Middle schoolers may become ever more serious in their attitudes to their chosen sports and the need to refine their skills may be stimulated by formal competition. This extends into high school. The making and modelling skills popular in first school years continue, although these tend to become increasingly specialist as youngsters are interested in modelling particular artefacts or working with certain materials. The motivations driving youngsters to develop skills unrelated to school vary considerably. Some realise the contribution that such skills may make to their progress, perhaps in terms of a particular career to which they aspire. Not all skills developed by youngsters away from school are self-motivated, however. In becoming more independent, middle schoolers may voluntarily take on additional responsibilities and challenges that *require* them to gain certain skills.

Other needs unconnected to school obligations emerge in a range of contexts. Some youngsters require information to prepare them for increasingly demanding future tasks as they seek to learn more about what lies ahead of them. Needs are often provoked by the social environment; youngsters may want to learn more about words new to them but commonly used by peers or members of the family. In terms of personal interests, many remain similar to those popular in the first school. Girls are still keen on animals, whilst boys

typically want to know more about sport, machines, transport-related subjects and topics with a military element. Some develop an interest in areas of knowledge which they consider may be useful in a future profession. Perhaps the most striking development, however, lies in the explosion in the need for consumer information in the middle school years. Often this is particularly evident in relation to boys and computer games but it is generally true that anyone who is a devoted collector wants to know more about what is available.

2.3 High schoolers

Although several patterns evident in previous phases again continue into high school, themes more particular to teenagers also emerge. They require advice, for instance, regarding a range of decisions that will affect their long-term futures, namely in relation to jobs, and the selection of GCSE subjects during the latter part of Year Nine, of "A" Level options at the end of Year Eleven and of courses and institutions for Higher Education during Year Thirteen. Guidance may also be sought on less far reaching issues such as topics for coverage in assignments. In general, however, high schoolers prefer to make their own decisions and are less dependent than their younger counterparts on advice from others.

Teenagers are faced with heavy academic demands in terms of homework - including assessed coursework - internal tests and national exams. Not only are they often examined at the end of the school year and around Christmas but work may involve testing after each "module" studied within a subject. Youngsters may require high degrees of emotional support in relation to each of these, although some form effective coping strategies and attitudes of mind that limit their anxiety. Many continue to find oral situations in class traumatic. These may include instances in which they are required to read aloud in English and role-play situations in Modern Foreign Language sessions. They may be acutely embarrassed or intimidated by others in the peer group. Anxieties are not restricted to school situations, of course. Concerns for others may extend to close friends, whose role in the life of the teenager becomes increasingly important. Indeed, needs for empathetic understanding of others may grow in the teenage years. Girls may want to know more about boyfriends, and adolescents generally often develop curiosity in relation to the motivations of others known to them.

Mathematics continues to generate many of the subject-specific skills information needs experienced by youngsters. Such skills are more specialised than in the previous phases and involve highly precise contexts. A possible explanation for the continuing high profile of this curriculum area is that Mathematics is one of few subjects that pupils must study up to and including GCSE level. Beyond Mathematics, skills needs are very diverse. In Year Nine, youngsters are introduced to a range of subjects, several of which are entirely new to them and necessitate the acquisition of relevant skills. Thereafter, however, the fact that youngsters may select their own options means that they themselves determine to some extent the domains in which they need to develop skills. Whatever options are taken, generic skills remain important. In particular, skills are sought for writing and structuring lengthy pieces of work and, again, for oral presentations. Skills of this kind are very product-oriented. Time management, too, may assume an increasing significance for some older high schoolers as they not only balance the competing demands for time of different homework assignments, ongoing revision and leisure but, in taking on part-time employment, must consider a new element in their lives.

During the high school years, needs for subject information follow a similar pattern to those pertaining to skills. In Year Nine, information may be required in support of subjects that have never before been studied by the youngsters. Thereafter, the curriculum areas in relation to which subject information is needed are again partially determined by option choices and, indeed, these are also responsible for the balance between subject and skills information required by the pupil. After GCSE level, information is needed in depth, rather than width, with youngsters usually pursuing only three or four subjects to a high level. Increasingly, subject information involves "reading around" the focus of class and assignment work so that this is understood in its proper perspective and against a wider context. In English Literature, for example, during Year Nine and GCSE level needs tend to concern set books, whilst "A" Level pupils have to demonstrate more background awareness. Similarly, in the Sciences information may be needed in order to apply the results of experiments to wider biological, chemical or physical processes. Whereas these needs may be understood as "divergent", with youngsters seeking to develop an understanding beyond a particular book or experiment, "convergent" needs also arise. Here information is sought in response to highly specific essay questions that demand analysis, often in terms of cause and effect. In History this may involve explanation of the origins of a particular event or movement. Pupils may be required to provide their own assessments of a subject, phenomenon or situation. The prevailing pattern is consistent with the hierarchy of learning objectives within the cognitive domain defined by Bloom et al (1956: 18). Typically, the information required for essays is needed for synthesis, rather than mere re-presentation, and the nature of essay questions may be too specialised to allow long passages of information simply to be copied or paraphrased. Work in class may provide only partial coverage of the question at the heart of the assignment, with the pupil obliged to find wider or more detailed information independently. Fairly general information may be required in the early stages of the work as youngsters explore the topic before a more restricted area is pursued. Fewer quick reference questions are set in the high school than in previous phases. Whether convergent or divergent information is required, that needed for essays itself often takes the form of analyses, interpretations, theories and opinions, and is no longer confined merely to facts. Multidisciplinary assignments, in which work ostensibly pertaining to one curriculum subject involves information dealing with quite separate areas, are common. There may also be greater scope for pupils to show individual initiative in determining the form of the eventual end product. In practical subjects, information may be needed to inform designs and stimulate ideas. A key theme within the high school is the decline in school-inspired interests. This may be the result of two factors. Firstly, the nature of set assignments may be sufficiently open-ended to allow pupils scope to follow up topics covered at school and of interest to them and, secondly, the large amount of school work that must be tackled may discourage youngsters from pursuing topics connected with school if it is not compulsory for them to do so.

"In the head" needs take two forms. Information is necessary for revision for small-scale class tests and internal and external exams. In addition, ongoing "information absorption" is required by youngsters throughout the duration of their two-year courses. This involves, for example, the constant learning of vocabulary in Modern Foreign Languages and "background reading" across many other Arts subjects.

Many needs involve information for decision-making with regard to youngsters' futures. Within school, teenagers require information relating to the options available at GCSE and "A" Level so as to inform their choices. Some may also seek from their teachers projections of their likely exam performances. Those who leave school at sixteen or do not intend to continue their education after completing their studies in the

Sixth Form require information about jobs and job opportunities, whilst those wishing to enter Higher Education need to know about courses available to them and potential institutions of study. In terms of actual academic work, youngsters may wish to verify the instructions they have been given and confirm the expectations of their teachers in the face of increasingly demanding assignments that may be open to differing interpretations. They may also seek to ascertain the accuracy or quality of the work they produce.

Skills in music, sport and drama are developed by many youngsters in their leisure time. A range of active interests is taken up by high schoolers, some of them inspired by the provision of classes at school relating to them, although youngsters may lose their enthusiasm quickly. This is indicative of the fact that leisure-related skills needs are often highly transitory, yet some young people remain dedicated to a particular pursuit and are keen to develop their skills in this area throughout their teenage years.

Again away from school, teenagers enjoy gossip or “news” about peers, as well as members of the family. Girls’ interest in animals usually fades but many boys continue to follow sport eagerly. Those whose interest in a particular sport is long-standing generally want information in relation to current stories, fixtures and results. This is typical of how teenagers frequently require information to extend what they know already in relation to an ongoing interest or to remain up-to-date with events in it, whilst some, of course, develop new enthusiasms and here more introductory information is desired. Boys remain keen on computer games which still stimulate many consumer information needs. Although recreational interests are varied and some are highly specialised, popular culture and the media are central to many leisure-oriented information needs felt by girls and boys. Some hold strong views on particular societal issues and seek to investigate them more fully. However, the importance and sheer volume of school work, in terms of both assignments and revision for exams, may limit the scope for youngsters to develop their interests, which are further “squeezed” by the tendency of the more gregarious teenagers to spend much of their time away from school socialising with friends.

3 IN RELATION TO INFORMATION-SEEKING

3.1 First schoolers

First schoolers use a variety of techniques to gain information, although, in specific situations, they are often unaware of the range of options available to them. Early years children are familiar with many forms of media but these are frequently used only for entertainment, without any attention to their information-providing potential. Comics, for example, are read or looked at for fun, television watched primarily for cartoons, and computers and computer-based technology chiefly employed for games.

The young child gains much information through “hands on” experiences, such as practical activities, engagement with artefacts through exploration and the use of toys, games and other playthings. Nevertheless, quieter, more solitary information-seeking methods are also prevalent. Many decisions are made after reflective thinking, which continues throughout the three school phases. Observation is a common way of obtaining information and may be either direct or one step removed, via television. The popularity of observation is partly due to the fact that first schoolers have limited skills in other areas, such as reading and information retrieval associated with IT, and to their ignorance of alternative information-seeking options. Such a lack of knowledge of how and where information on matters of interest to them may be found frequently leads to many needs remaining unexpressed.

Youngsters typically progress from experiencing story books to basic non-fiction works, although the latter may be familiar to children as young as Reception age. An adult is generally required to assist when books are consulted for information in the early years but children become more independent and make greater use of these materials as they are increasingly exposed to books at school. Books providing lists of multiplication tables are among the earliest consulted specifically for information by some young children. Little reading is necessary and even early years youngsters can exploit them effectively. Posters may be scrutinised for the same purpose. The use of tables books may also mark the beginning of non-sequential use of non-fiction books by a youngster, although this may be slow to develop and does not always extend into exploitation of books of other kinds. The fact that young children's first contacts with books usually involve picture books, story books and school reading books, all of which are intended for cover-to-cover reading, means that the use of non-fiction books for information in a more selective fashion may appear unnatural to them and demands considerable conceptual adjustment. Whilst they are taught the value of contents pages and indexes from an early age in first school, youngsters may still read many non-fiction books sequentially even when they are seeking specific information but, as they begin to use books to a greater degree to investigate personal interests, they realise the importance of these aids and exploit both more than previously. Nevertheless, some sequential behaviour may persist, even in the higher phases. Encyclopedias become popular among older first schoolers, both for academic work and to satisfy their own interest in the world around them. A familiarity gradually develops with a range of different types of books, including dictionaries, instructional books and booklets accompanying products. These are used with growing confidence but confusion may arise as to the differences between similar sources, such as dictionaries and encyclopedias. Many of the first books to be used for information are bought for the child or are already present in the home. The latter may be owned by older siblings. Even young children may amass substantial collections of personal books in relatively short periods yet, when investigating topics of interest to them, they often rely heavily on a favourite volume.

Although first schoolers gain much of their materials-based information from books, CD-ROM becomes increasingly important during the later years in this phase. The rise in its use coincides with greater experience of this technology in school. Both CD-ROM resources and the Internet, which children usually begin exploiting when slightly older, are generally very popular with first schoolers, perhaps as a result of their novelty and interactive nature. Early home use of CD-ROM for information, typically when youngsters are aged around six or seven, frequently involves the exploitation of hardware and software owned by a parent or older sibling, and often centres on the package, "Encarta", which is interrogated chiefly for information on subjects of personal interest. In the last years of first school, as academic work assumes greater importance, the emphasis shifts and needs pertaining to this domain are responsible for much use of electronic encyclopedias, a pattern that continues throughout the two subsequent school phases. Whereas CD-ROM can be exploited by older first schoolers fairly independently, the Internet is rarely used without parental assistance or supervision. It is a measure of the relative ignorance of the child working alongside the adult in interactions with it that some youngsters remain unaware of the name of the search engine they routinely employ. In many cases the Web's main value lies in providing illustrations, maybe because the reading level of the text offered by many sites is too advanced for youngsters of this age. Despite the fact that use of the Internet becomes more extensive as children move through the first school, even by Year Four CD-ROM continues to be employed to a greater degree.

Search strategies are rudimentary whether the materials exploited are paper-based or electronic. Seldom do youngsters use any form of Boolean logic when interrogating the latter, and this is true of youngsters in all phases. First schoolers are usually uncritical of the sources and materials they employ, partly perhaps because the heavy involvement of adults shields them from prolonged exposure to some of the most frustrating problems but they realise over time that certain types of sources are better suited than others to meet particular needs. With adult prompting and help, they may also make intelligent use of materials for purposes other than those for which they were intended.

Use of television shifts during the first school years. Older youngsters are no longer content simply to watch cartoons but exploit the medium to learn more about subjects of interest. The programmes viewed provide both "pre-packaged" information and a substitute for first-hand experience. Even children as young as six and seven may develop a knowledge of Teletext.

School libraries are generally small and many pupils do not consider them significant providers of information, either for school work or on subjects of personal interest. This situation in part results from the low profile of many libraries within first schools, as illustrated by the fact that the library may be only one of the responsibilities of a teacher who exercises a wider remit that might embrace "literacy" or "resources".

The use made of the public library varies from one child to another on the basis of the library-going tendencies of their families. The youngest children are, of course, entirely dependent on their parents for access and for the development of an understanding of its organisation. Some youngsters make regular trips from a young age, with family visits at weekends common, and may frequently consult the children's collection for books on matters of interest, sometimes at the instigation of a parent. Exploitation of the public library for material on school-related topics typically increases as youngsters move through the first school. The young child's dependency on the adult further emerges when materials are sought within the building. The youngster is reliant on the grown-up for practical help, and the approach employed is likely to be that favoured by the adult. Misconceptions concerning the arrangement of materials in the public library are rife and may reflect the fact that it is the accompanying adult who leads the information-seeking activities within the environment. Youngsters may exhibit a surprising ignorance of not only library terminology but even the name of the library they visit regularly.

Other people play a key role in meeting first schoolers' information needs, and an interpersonal approach may be the first method that comes to mind for many youngsters, partly perhaps because conversation has become a natural means of communication by the time the child reaches Reception age and partly because children are so dependent generally on others. In their later years in this phase, youngsters may seek tuition in developing skills in relation to areas of interest, and the necessary instruction is often provided by specialists in group sessions. Throughout the first school years, much subject information, however, is sought from people of convenience, such as parents. Since the young child possesses limited reading skills, the adult typically responds to requests by *telling* the inquirer the desired information or paraphrasing the content of books that have been consulted for the purpose. On occasions, youngsters expect members of the family to be able to provide fairly specialist information from their own knowledge, and appear not to appreciate the limits of what is known by those who are not experts. Problems are exacerbated by the fact that the range of adults available to many youngsters is small, and may be limited to those at school and the close family. Thus the task

of finding an adult with the appropriate experience to answer detailed or specialist questions can prove challenging.

A small number of sources is generally used when first schoolers attempt to find information for school. Usually a single search term is employed, and that selected is considered by the youngster to reflect most appropriately the topic of interest. Assessments of the value of a source are typically based on the amount of information within it which pertains to the subject of the need. Information-seeking is difficult for many first schoolers, especially in the early years. Their limited awareness of the width of knowledge that can be found in books and their poorly developed reading skills are particularly major handicaps. Youngsters may find themselves using materials that are inappropriate to their reading age but whose content matches the field of their interest. Furthermore, should their preferred information-seeking method fail, their experience is so meagre that they are often uncertain as to what further information-seeking action they might take. A similar lack of experience means that they may be unable to identify the name of the phenomenon in which they are interested and they struggle to place it within both broader and narrower topics. This is unnecessary when other people are consulted since interpersonal interaction enables the interest to be clarified but poses a significant problem when paper or electronic materials are used.

3.2 Middle schoolers

The middle school years are a time of changing information-seeking behaviour, with a range of resources hitherto unfamiliar to youngsters exploited for the first time and perceptions of the value of sources previously consulted habitually shifting. Inquirers often become aware that their some of their existing methods and skills no longer stand them in good stead, as school assignments require them to seek ever more detailed and specialist information.

Middle schoolers become increasingly adept at recalling, for use in homework, information accumulated through school activities. Although rarely sufficient in itself, the remembered content may form a starting point or complement that retrieved from other sources. A growing range of diverse materials plays a significant part in the information universe of the middle schooler. Exercise books and files of work may prove valuable in the contexts of assignments and revision for tests. When tackling projects, youngsters with older siblings may attempt to supplement information from other sources with work within the exercise books or files of their elders. Exam papers may be consulted to ascertain what is expected in national tests like SATs in Year Six. Materials produced by teachers, such as booklets and sheets, may also be made available for assignment work, although additional content is again likely to be required from sources that the youngster must seek elsewhere, beyond school. Youngsters may make intelligent use of examples from worksheets to learn skills, especially those involving Mathematics. Television continues to be watched for information on subjects of personal interest and the viewing of programmes on specialist documentary channels is common.

Books are read for a range of purposes. They are still scrutinised for subject knowledge and may also be consulted for skill development. Paper encyclopedias remain popular, although those designed for children lack the in-depth information required for many assignments set in the upper school. Nevertheless, youngsters relish the fact that their content is easily read and comprehensible. Books at home continue to be widely used but, rather than looking at just their own and those of siblings, middle schoolers may exploit those that belong to their parents. Friends' books may also be examined in specific situations. The first schooler's awareness of

different types of books and the circumstances in which they should be read grows in the middle school years, and reliance on electronic sources also increases. Paper materials consulted may include less general sources, such as atlases. Whereas books are typically bought *for* youngsters in the first school, their older counterparts may assume greater responsibility for their purchase and some may be acquired in response to lengthy class studies of particular topics, as well as to pursue personal interests. Middle schoolers are cognisant of the respective characteristics of contents lists and indexes but do not always use them when seeking information within a text and, like their younger fellows, may be prone to consult an index from the very beginning of the sequence. As middle schoolers find themselves required to use more substantial and complex subject books, they may struggle with the large amounts of text with which they have to deal.

A greater interest in and appreciation of the world at large may lead to the reading of newspapers, and magazines are much more likely to be looked at by middle schoolers for information on matters of personal interest than by first schoolers. Magazines devoted to sport and computers are popular. Seemingly unaware of their valuable material, many middle schoolers make very little use of journals for school-related subject information, however.

Exploitation of the Internet typically expands during the middle school phase, although parental supervision and control may still be strict. Conversely, levels of CD-ROM exploitation tend to decline from high levels in Year Five. In the early years of middle school, reliance on both CD-ROM and the Internet may be so widespread that those without these resources may believe that they are working at a grave disadvantage relative to their fellows and may be keen to exploit opportunities for access offered by suitably-equipped friends and school computer clubs. Some youngsters accumulate considerable CD-ROM libraries that include general encyclopedias and more specialist titles, the latter again often purchased when a particular topic is being covered at school over a sustained period. A downturn in CD-ROM use in the second half of the middle school phase is largely the result of a need for increasingly detailed and specialist information for school assignments in the final year or two of pupils' time at the school. CD-ROM encyclopedias now have limited value in meeting such needs. Particular Web sites often excite youngsters. They develop favourites and consult them habitually, often after "bookmarking" them. Youngsters' choices of search engines may be heavily influenced by experience at school and advice from other people. There is little preliminary planning of searches, and trial and error approaches are common. Despite their increasing use of the Internet, many middle schoolers are heavily critical of it and no longer do they view its shortcomings as simply characteristics of the system, although where adults assist in Internet searching many of the frustrations that youngsters would experience if working alone are still reduced. Particular search engines may also be targets for condemnation.

Information channels associated with the school take on growing importance. Materials consulted by youngsters include books within the classroom and textbooks provided by the teacher. School libraries, however, often remain peripheral to the youngster, especially if they are small and access is limited to particular times of the day. Again, the library may be staffed or maintained by an ordinary Class Teacher responsible for other curriculum areas. This does little to raise the profile of the library in the eyes of middle schoolers. Nevertheless, some become very attached to favourite books that they find in the stock. As with the Internet, problems that youngsters associate with the school library are often identified as substantive weaknesses.

Users of the public library are frequently those without home access to the Internet or large domestic collections of books. Some spurn the service, perceiving that opening hours are unaccommodating and inappropriate to them, although others, noting that the stock easily exceeds that of the school library, are eager users. Confusion about the organisation of non-fiction materials within the building remains common. Even those who have become regular library visitors during their first school years tend to struggle when making the transition from the children's to the adult section. Whilst often overwhelmed by the amount of material held in the senior section, they acknowledge that the junior stock, with which they feel more comfortable, is now unable to meet their needs for the more specialist and detailed information demanded by school assignments. Some develop their own opinions as to the circumstances in which the children's and adult collections should be used. They require considerable assistance from grown-ups to make effective use of the latter, although ironically this is at a time in their lives when youngsters are striving for greater independence, and many visit the library alone or with friends rather than with their parents. Their difficulties in using the adult stock are exacerbated by the fact that the school libraries with which the youngsters are familiar may be small and equipped with only basic bibliographical tools. This environment provides an inadequate training for finding materials in a public library.

In response to school assignments, organisations such as Tourist Information Centres, health awareness groups and embassies may also be approached for specialist information, usually at the prompting of adults.

Other people still provide significant amounts of skill-related and subject information. Middle schoolers contrast with their younger counterparts, however, in that they have developed a realistic perception of the limitations of the knowledge of adults such as parents and also begin to recognise that they are fallible. They may be deterred from consulting others by the prospect of hostile reactions. Peers start to assume an important role when youngsters seek to verify their understanding of what is required in taxing homework assignments. All these patterns continue into the high school phase. Adults are important in directing the attention of youngsters to other sources that may be of use to them. In general, these are then exploited more independently than by the first schoolers. Indeed, the middle school phase sees a gradual decline in the use of other people as process assistants.

3.3 High schoolers

Several themes emerging in the previous phase, such as increasing use of the Internet and information channels associated with the school, remain or become more pronounced among high schoolers. Recall for assignments of information obtained during school activities is still an important method. Although, as in the middle school, personal work from files and exercise books is used by some, many youngsters regard these as poor sources and are critical of their legibility, sense, detail and accuracy. They may opt instead for commercially-produced revision guides. School option booklets and, especially, university prospectuses may be significant materials when youngsters make decisions on their future. One of the most striking changes in comparison with the information-seeking behaviour of middle schoolers lies in the decline in the use of paper encyclopedias, which now seldom provide information of the required detail or specificity, yet general reference books may still offer a good starting point for the initial investigation of a topic. Monographs are key sources, and dedicated subject dictionaries may be of considerable value. Where parents are closely associated

with particular curriculum areas, some such books may be available at home. Youngsters continue to expand their own home libraries and may be ardent collectors of books on topics of personal interest. High schoolers are more likely to read newspapers than younger people, and their motivation for doing so may be to acquire information for school. Magazines, alongside the Internet, constitute an important source of material on specialist interests but, as in the middle school, there is very limited exploitation of them for academic assignments. Nevertheless, teenagers may make intelligent use for school purposes of ephemeral sources such as leaflets and catalogues. Television may be less important to the high schooler as an information source, partly because of the ready availability of other materials and channels.

It is in the high school phase that use of the Internet is greatest. Teenagers relish the detail of its material and the range of curriculum subjects on which they can find information. Whilst many perceive it to be a major resource for information for school assignments, they are very critical of the Internet's weaknesses. They are disconcerted by the mass of irrelevant sites listed by search engines when a search is made, and are intolerant when downloading times are slow. Nor do they enjoy reading large sections of text on-screen. Finding useful information on the Web can prove very challenging and frustrating. Curbs on home use are often still imposed by parents, who may insist, ostensibly on the grounds of cost, that the Internet is employed only for school, although, where a less restrictive stance is taken, teenagers may exploit the resource for information on a range of personal interests, typically sport, popular culture and consumer matters, especially in relation to computer games. Use of the Internet may involve the regular monitoring of favourite Web sites to learn of the latest news and developments in a field of interest but, where a subject is new to the youngster or no specific sites are known, as is the case with the topics of much school work, search engines are commonly employed. Often high schoolers recognise that some search engines are better suited than others to cater for their needs in particular areas. Those without the Internet at home frequently depend on friends and free access at school, although, faced with filters that limit the subjects on which information can be retrieved, they may struggle when undertaking at school searches on sensitive or controversial matters even for academic assignments. CD-ROM encyclopedias are used for information much less than in the previous phase but, where they are employed, they may provide a useful overview of a topic or help to fill gaps after the exploitation of more specialist sources. No longer are youngsters able to base an entire assignment mainly on the information they have found via CD-ROM. Whilst levels of exploitation are more limited, CD-ROM resources remain well regarded, principally because of their ease of use and the directness with which information can be accessed. Some high schoolers admit still preferring CD-ROM materials to the Internet. A curious anomaly in the general downturn of use of CD-ROM from the late middle school years emerges in Year Nine as exploitation of CD-ROM increases temporarily, primarily because youngsters in this, their first year of high school, are studying a range of subjects for the first time and require relatively low level information on the topics they encounter. CD-ROM use usually dwindles once more when detailed and specialist information is required for GCSE and "A" Level studies.

In terms of channels of information provided by the school, subject textbooks supplied by teachers make considerable contributions when youngsters undertake assignments and revision for exams. One or two books may be employed throughout a two-year course for some curriculum subjects, although others may necessitate the use of a different book for virtually each topic studied. Departmental libraries, which may be substantial, are a first port-of-call for some youngsters when producing assignments, and increasingly specific

texts are consulted as pupils move up the school. The main library of a high school tends to be larger than those of schools in earlier phases, may be more accessible in terms of opening hours and is more likely to be staffed by a professional librarian. Where they perceive the school library to be effective and beneficial, pupils may use it extensively, usually for school-related subject information, and library materials may be employed in conjunction with sources such as Internet articles, textbooks from subject teachers and books at home. Other pupils are more apathetic in their attitude to the school library and a few are even hostile, either never using it of their own volition or visiting it only for the access it may offer to personal computers.

Some high schoolers remain enthusiastic users of the public library, although many consider that, as they have a range of other resources at their disposal, both paper and electronic, they have no need of it. Often those who do exploit a public library gravitate towards the central library. Many make the journey to the library unaccompanied but, if they live some distance away, others may still be reliant on parents for transport. The time when they used the children's section is now past and even the adult stock may not be able to provide them with information of the required detail or specialism when advanced work is being undertaken.

Other people, especially parents and teachers, play an important role in alerting youngsters to particular sources of information that may be of help to them, and high schoolers often act on this advice independently, although some ignore such recommendations altogether. Teenagers recognise that usually sources exist which are more appropriate than other people for providing detailed subject knowledge, yet the latter continue to play a key role in supplying information of a range of kinds. Specialists are used for skills information, especially in sporting domains, and youngsters working at a high level may be regularly trained by coaches. When faced with problems associated with homework, even teenagers may still instinctively turn to parents, often for advice on where information may be obtained but by this stage many have developed tactics that they use habitually for finding material for school. Information for the youngster's own interest is unlikely to be sought from parents. Friends are important sources of gossip, confirmation of what is expected for school assignments and, occasionally, subject knowledge. The increasing specialisation with which youngsters make use of other people for information is a key characteristic of the high school phase. People play an important role in providing information in specific areas in which they are involved. Teachers, for example, are approached for information on option choices at school and to clarify what they require in the academic work they set. Nevertheless, teenagers may be wary of subjective information dispensed by those in positions of authority, especially when this takes the form of advice.

In many ways, the information behaviour of the high schooler is much more sophisticated than that of his or her younger colleagues, even though there are respects in which they are still essentially similar. Whether using library collections, the Internet or individual books, the teenager continues to spend little time on formulating keywords in advance of a search, and trial and error tactics when employing search engines remain common, partly because, when seeking information for school, little may be known about the topic under scrutiny. The search terms employed are often either those that are considered most obviously to represent the subject or simply lifted from the assignment brief. Occasionally, those formulated are of too broad a character. Teenagers remain generally ignorant of Boolean logic. Like their younger fellows, some teenagers are confused by terminology relating to public libraries and IT.

High schoolers gradually realise that the information they require for in-depth school work is unlikely to be found in a single provider, although this can cause much frustration. They come to appreciate that

information must be pieced together from several sources and, mainly because of the nature of the work demanded of them, are more likely than their juniors to exploit a multiplicity of materials but they still tend to restrict the numbers of sources they consult as far as possible. Despite the fact that their use of keywords continues to show little evidence of preliminary thought, some develop written plans for the construction of assignments using different sources, recording the contribution each may make to the overall subject. Based on several years of experience, high schoolers may have a good knowledge of the sources that provide them with information on subjects of ongoing interest and better developed skills in their use, especially in terms of reading. They also benefit from the greater variety of materials and channels available to them. Faced with growing numbers of increasingly detailed assignments and other activities that compete for time, convenience, speed and accessibility are the key criteria employed by many teenagers when selecting and using information sources. Some are keen to concentrate their initial efforts on readily available materials, such as sources at home and textbooks provided by the teacher, but others move from general to specific information and conclude by using materials of a range of kinds to plug gaps in the content they have encountered. Whilst they are still prone to believe that a good source is one that contains much information, some realise that one that fills these gaps is also of value. Their evaluations of sources are thus more context-sensitive than absolute. Even high schoolers, however, rarely make attempts to assess the accuracy of the information they find, unless they consider there are good reasons to doubt it, as may be the case with information provided orally by other people or that within handwritten notes.

PART VI:
IMPLICATIONS AND RECOMMENDATIONS

- Chapter Twenty - Relevance of Study Findings

CHAPTER TWENTY
RELEVANCE OF STUDY FINDINGS

This chapter provides recommendations that have emerged from the study findings. Once more, they are made in terms of the three content areas of the project. Suggestions are offered for future research work, as well as practice in schools, libraries and the world at large.

1 IN RELATION TO THE TERM, “INFORMATION”: IMPLICATIONS FOR RESEARCH AND PRACTICE

Despite the diversity of strands within the youngsters’ definitions of “information”, a clear pattern emerged. Informants in the junior half of the sample, from approximately six years upwards, overwhelmingly associated the word with factual knowledge. This strengthens the case for using an information-oriented approach when investigating the information needs of youngsters within this group, since many of them evidently share a common line of thought in relation to the term. If, however, researchers are concerned with youngsters’ needs for information beyond factual knowledge, they may deem it necessary to indicate to informants that their inquiry pertains to this wider area. Furthermore, because youngsters of this age typically associate information with academic needs, textual forms and sources such as books and computers, researchers may wish to emphasise, where this is the case, that they are also interested in requirements for material to satisfy non-school-related needs, available in non-textual formats and from any source.

As older youngsters diverge in their understandings of the word, “information”, the information-oriented approach seems ill-suited to employment in a developmental study sampling youngsters of a wide range of ages and examining how needs vary during the years of childhood. Here, the fact that there is such variety in the understandings of teenagers, especially, suggests that, when they recall actual instances in which they have looked for “information”, the nature of what they perceive they are being asked about may vary widely from one individual to another.

The research carried out for the thesis is of value in drawing the attention of those who interact with young people, especially teachers and librarians, to the tendency of children of first and early middle school age to equate “information” with facts provided in text form and “found out” from sources like books and computers. Adults must decide whether they share these constructs or if, in their use of the term, “information”, when in conversation with young people, they intend a broader or different meaning. The study has found the word to be commonly employed by some teachers of even first schoolers. A complementary, follow-up project could scrutinise use of the term by educators when interacting with youngsters, particularly in relation to set work, and investigate their expectations with regard to the type of information that should appear in what is ultimately produced by the pupils. Comparisons may be made between the adults’ intended meanings and the understandings of youngsters. It may become apparent that an educator’s use of the term within the context of an assignment encourages youngsters to seek certain types of information in given forms and held in particular sources, and this experience *contributes* to their overall attitudes to the word, “information”. In a similar way, if, in producing their assignments, pupils find that they require no more than factual knowledge retrieved from reference books and computers this may also be responsible for their attitudes to the term. If, however, the adult uses “information” in a wide sense, he or she may need to emphasise when

setting tasks that it may be of different types, in various forms and be extracted from a range of sources in addition to books and computers, and indicate that the use of material of these kinds is expected. Since in their own unprompted articulations incorporating the word, "information", informants never referred to other people as information providers, teachers may also wish to indicate how they may form legitimate sources, although this must not, of course, lead youngsters to believe that it is acceptable for adults to complete assignments for them.

The "openness" of the definitions offered by many older informants may derive from the fact that adults with whom the youngsters have come into contact have used the term, "information", in many different contexts. When an adult employs the word in a certain situation, however, a narrow, intended meaning may be lost because of the very openness of the youngsters' understandings. This issue is similar to the problem raised by Wilson (1981: 3) that researchers create confusion by using the term, "information", without making obvious the sense in which it is intended.

In view of the diversity of understandings of the term among teenagers, it may be questioned whether the word, "information", is of any real value. Whilst some continue to equate information with factual knowledge, others see it as embracing advice, opinions, creative ideas and instructions; some assume information to be textual, others understand it to include pictures, diagrams and calculations; whilst some believe information to be extracted from recognised sources, such as books, computers and people, others consider that information can be obtained from virtually anywhere. Perhaps instead of employing the word, teachers may wish to offer a more specific indication, using different vocabulary, of what they actually mean. Pitts (1994: 75), in her own project, has also found that some of the associations youngsters make with the term can be obstructive when an adult is attempting to convey meaning to them. She, too, reached the conclusion that the grown-up, in this case herself, as a researcher, should employ other, specific phrases which convey more precisely to informants the investigator's intended meaning. Fairthorne (1965: 10) has expressed a similar view, writing, "Clearly, 'information' and its derivatives are words to avoid." Like Pitts, he indicates the importance of saying more particularly "what we mean".

2 IN RELATION TO INFORMATION NEEDS: IMPLICATIONS FOR PRACTICE

2.1 At school

a) **Skills teaching.** Needs for skills information required for school may be considered an indicator of either

- *shortcomings in teaching* of the skill. This was especially the case with Mathematics, where youngsters in all phases needed "help" beyond the provision offered through ordinary teaching. Findings suggest that such additional information is required to develop skills in a diversity of areas of Mathematics but a future study specifically examining this issue, with a larger sample, is necessary to investigate whether similar problems emerge among youngsters of the same age or whether the difficulties are more particular to the individual. An understanding of which of the two patterns predominates will then determine the balance of the remedial action. The former would imply the need for greater whole class emphasis to anticipate and prevent the emergence of common problems, whilst the latter situation suggests a need for more one-to-one teaching and greater proactivity in identifying individual problems at an early stage;

- ***insufficient teaching*** of the skill. Some generic skills, such as those relating to time management, essay planning and oral presentations, were apparently not taught in the schools, perhaps because in the phases of middle and high the curriculum is organised in accordance with subjects. Again, more research is needed to investigate how information relating to these skills should be provided. Despite the fact that they may all be considered “generic”, i.e. they are not tied to a particular curriculum area, significant differences emerge. Whereas skills pertaining to essay planning and oral presentations, for example, may be taught in relation to a certain assignment, those associated with time management are less easy to address in this context. In order to maintain an emphasis on the generic nature of all these areas, it may be that these are best addressed in dedicated “study skills” sessions perhaps introduced in the middle school phase. Levels Two and Three of the “Communication” unit of the Government’s “Key Skills” programme (Qualifications and Curriculum Authority, 2000), introduced for teaching at high school level from September 2000, some months after fieldwork was completed, require pupils to demonstrate a series of skills when delivering “short talks” and “presentations”. Care must be taken to ensure that not only do youngsters meet the stipulated requirements but have sufficient confidence in their skills to be undaunted by such situations.
- b) **School assignments involving free choice of subjects.** In work where youngsters were given an entirely free choice of topics, instances arose in which they experienced information-seeking problems that led them to change their subjects. In all cases this was done without informing the teacher. Staff justified their decisions to allow pupils to select their own subjects on the basis that the process of investigation, together with the accompanying practice in reading and presenting, either in writing or orally, was of primary importance, whilst the knowledge acquired by the youngsters was a lesser concern. In view of the priority given to process by the teachers, it is ironic that some pupils experienced process problems of which their teachers were unaware and the educators were consequently unable to develop their pupils’ skills in these areas. Situations where youngsters simply changed topics in the face of difficulties led to their learning nothing about either appropriate problem solving strategies or the importance of perseverance, and they emerged poorly prepared for work in which highly specific information needs were defined for them and where they had no alternative but to find material on the stated subject.

It should not be assumed, however, that, in view of the manner in which pupils were able to sidestep information-seeking problems instead of having to tackle them directly, the principle of free choice subject assignments is fundamentally flawed. Indeed, there is much to commend the attitude of Cooper (1996: 48) that youngsters should be encouraged to “follow their most natural interests and inclinations in the pursuit of knowledge”. Burdick (1997: 35), too, is a vocal advocate of allowing pupils to nominate their own topics for investigation. Teachers should, however, ensure the following:

- that pupils’ progress be monitored more closely. This should begin with staff noting at the outset the topics nominated by youngsters and, where deviations are made, discussing with the pupils the reasons for these changes. Teachers must work towards developing a longitudinal picture of youngsters’ progress towards the completion of the work, recognising problems at particular stages and helping pupils overcome them. In each of the situations described in the study, the teacher did not maintain a list of subjects chosen by the pupils and was therefore unaware that deviations had been made;

- that within the classroom a climate is developed in which information-seeking problems are considered normal and a natural part of process. Youngsters should be encouraged to feel that difficulties can readily be discussed and are not an indication of personal failure. In advocating that pupils should be encouraged to be more open in acknowledging any problems they experience with regard to “information overload”, Akin (1998) writes, “learning you are not alone with a feeling creates a sense of community and sharing.”

The two above recommendations present very different implications. Although few would belittle its value, the first may be resisted on the grounds that it involves yet more staff effort, and the difficulties of maintaining an understanding of the progress of each youngster in a large class must be recognised. The second recommendation, whilst costing less in terms of the teacher’s time, applies more to the long-term, as the whole culture of the teaching environment may need to be revised.

- c) **Guidance regarding assignments.** Just as needs for skills-related information tended to reflect youngsters’ problems in particular areas, many needs involving advice, verificational information and reinterpretations/supplementations arose from youngsters feeling uncertain as to what was expected of them in school assignments. Often these situations could have been avoided had the instructions been clearer at the beginning of the activity. Again, more opportunity must be provided during preliminary briefings for youngsters to voice their real concerns to those who have set the work, thereby reducing their anxieties and needs at a later stage. Once more, this may require a more collaborative, interactive atmosphere to be fostered within the classroom.

2.2 In the wider world

The need for information pitched at different levels. The fact that some individuals found existing material on topics of particular interest to be inappropriate in level emphasises the importance of information being made available at varying degrees of complexity in terms of both language and content. The problems experienced by informants in this regard emerge from a “one size fits all” approach, which has also been noted by the Manager of the West Area of North Tyneside’s library service (L/LIB/PI/1). He asserted that children’s subject books devoted to particular topics rarely show significant differences in the levels of reading ability they require and he contrasted this position with that pertaining to fiction. He commented, “With fiction, there’s more distinction. There are young people’s books, ‘starting reading’ books and so on but with non-fiction you don’t get such clear cut divisions.” The difficulties resulting from a “one size fits all” mentality are reminiscent of the dilemmas encountered by first school teachers working with poor readers. Reading books most suitable for them in vocabulary have also tended to be basic in content. This renders them inappropriate for intellectually capable older children who struggle with reading. The problem within the study in relation to information is compounded by the multiplicity of variables that are involved. Youngsters of a very junior age may show a surprising interest in particular subjects, some of which may be considered quite advanced, and require information commensurate with their degrees of both reading skill and intellectual development. Unfortunately, the combination of these variables at levels that may be different means that such materials are needed in highly individualised provision. The fact that they are thus inappropriate for a mass readership militates against their production and dissemination.

3 IN RELATION TO INFORMATION-SEEKING

3.1 Recommendations for research

From the study's results, it can be seen that more investigation is required into particular areas, especially

- a) **youngsters' problems with books.** Even in the high school phase, some pupils struggle when using subject texts. Although it is clear that for a few individuals it is the task of reading solid blocks of text that proves demanding, more work is necessary to ascertain in detail where the problems lie and how steps may be taken to render texts more user-friendly. Youngsters discouraged by long sections of small print may, for example, feel happier when more visual, diagrammatic forms of presentation or more broken, report style structures are employed. The results of this research should be disseminated among publishers;
- b) **book-related information retrieval habits.** In order to determine whether or not the patterns apparent in the study in terms of the sequential and selective accessing of information by youngsters using non-fiction books are borne out elsewhere, observation-based projects should be undertaken to examine the behaviour of readers attempting to locate specific information in subject texts. The research may address whether a sequential or selective approach is employed and, in the latter case, whether a contents page or index is used. The tendency noted among boys, in particular, to find information by searching for appropriate illustrations may also be the subject of further scrutiny using observational methods. Reasons for the youngsters' actions may be discussed in follow-up interviews;
- c) **adult aid in libraries.** The difficulties encountered by the investigator in determining how far the library behaviour of the youngest informants was their own and how far it was actually that of their parents support the view of McKechnie (1997: 69) that considerable complexities result from the fact that "parents and other adult care-takers are often intrinsically involved in the child's interaction with libraries and library materials". More research, again with an emphasis on observation, is needed to determine the extent of the assistance provided by such adults and the forms that it takes.

Opportunities should be sought to encourage school- and library-based practitioners to undertake studies within their own organisations. The problems involved in research conducted in this way must be acknowledged, however. Many staff, especially teachers, already feel burdened with excessive work, and Pollard and Tann (1987: 11) draw attention to the tendency of practitioners' analyses to be "unduly influenced" by their own assumptions. Nevertheless, their positions are such that they may be able to carry out investigations of significant value, particularly if they have research experience. Problems of access are minimised and practitioners are well placed to conduct inquiries based on observation. If the latter is done covertly, the study may gain a more naturalistic dimension than that of an external investigator, although the ethical soundness of such unobtrusive research may be questioned.

Now that an attempt has been made within the thesis to provide a "rich picture" of youngsters' information universes and a series of typologies has been defined, the time would appear ripe for the development of complementary, quantitative studies assessing, with larger samples, the prevalence of particular patterns of thought and behaviour revealed in this project. Quantitative work may also examine such issues as the balance in the use of CD-ROM and the Internet among youngsters of different ages when tackling academic assignments.

3.2 Recommendations for practice

3.2.1 Paper and electronic sources

- a) **Presentation of indexes.** Given the tendency of youngsters particularly of first and middle school age to read through all the early part of an index within a book when attempting to locate a particular word, publishers should signal more obviously the beginning of each mini-sequence commencing with a particular letter of the alphabet via the appropriate character. If each part of the list were more immediately apparent, this might encourage inquirers to begin their searching at the start of the subsequence rather than the index itself.
- b) **Subject-specific CD-ROM software.** Much use of CD-ROM for information is limited to general encyclopedias. Nevertheless, the popularity of the medium indicates that many youngsters in the higher school phases would relish the opportunity for greater exploitation of specialist CD-ROM software devoted to particular areas of knowledge. A review of publishers' catalogues conducted by the researcher reveals that such packages exist but their details are generally disseminated to schools, rather than the public at large. More effort should be made to market them to pupils and their parents, as well as teachers.
- c) **Academic Web sites.** There is a considerable need for more National Curriculum-oriented and exam syllabus-driven Web sites that provide information at an appropriate level on different topics studied at a range of phases, from first school to upper high. If pupils could be made aware of their existence and if they came to rely upon them as first choice sites, it would help to alleviate the problem of youngsters continually using search engines that list too many sites of no or limited relevance and of dubious authority.
- d) **Site filters.** Work must continue to increase the sophistication of Web filters, which currently block access to "innocent" material needed for academic work. Greater effectiveness of filters may also ease the minds of parents of first and middle schoolers who at present appear wary of allowing their offspring unsupervised use of the Internet.

3.2.2 Organisations

3.2.2.1 The public library

- a) **Transition from children's to adult department.** Library staff should be aware of the difficulties caused to youngsters, generally of middle school age, when moving from the use of the children's stock to the exploitation of that for adults. As those in this position might be reluctant to ask for assistance, leaflets could be produced explaining how information on subjects relating to popular culture, sport, computers and other matters of interest to young people might be found within the collection. Such leaflets must stress that the underlying information-finding principles should be applied when searching for content on any subject.
- b) **Library signage and stock organisation.** Many youngsters use the subject index within the public library to locate stock on particular topics. In order that they may find books with the appropriate classification number as easily as possible in the adult department, thought should be given to how stock can be arranged in a more obvious, unbroken progression round the room or, where this proves impossible, as may be the case with substantial collections, how large arrows or footprints on the floor can be used to indicate the direction of the sequence. Such markings must be made with sensitivity, however, since, although these may also be welcomed by less able or inexperienced adult users of the public library, inquirers with greater expertise may consider them patronising.

In children's departments, in particular, greater labelling of subjects on the shelves would facilitate easier retrieval of desired information. A hierarchical system might be used, with references to both broad and specific topics, thereby reflecting the structure of the Dewey Decimal Classification Scheme itself. In her own research, Dobson (2000: 47) has found support among youngsters for better labelling on library shelves and walls.

- c) **Library personnel.** In view of the fact that many young people seek staff assistance in tasks such as finding stock devoted to particular subjects, efforts must be made to ensure that personnel within the public library are friendly, welcoming and available.
- d) **Inter-library loan services.** These appear to be seldom used even by many senior high schoolers, partly because most are seeking any materials on a particular topic, rather than a certain item. Nevertheless, those who did employ the service found it ineffective. The researcher's own experiences have proved equally disappointing. Efforts should be made to bolster this facility, which could prove of considerable benefit to youngsters wishing to borrow recommended texts.

3.2.2.2 Schools

3.2.2.2.1 School libraries

- a) **Role of school libraries.** More attention should be given to raising the profile of school libraries and rendering them more relevant to the youngsters they are intended to serve. In the lower phases, many pupils simply do not consider the school library an important resource when seeking subject information for either academic work or their own interest, whilst high schoolers have available to them a range of other materials and channels which they may prefer. Perhaps the importance of school libraries can be enhanced by ensuring that their stock is more closely tailored to the topics addressed in school assignments. This would, of course, demand close liaison between subject teachers and the librarian. Problems will always persist, however, when youngsters are given an entirely free choice of subject for an assignment. As Joyce and Joyce (1970: 10) indicate, "truly learner-centered inquiry takes students in all directions."

Limitation of school library opening hours to lunch times is undesirable. If in schools within the first two phases the library is to have sufficient status within the overall organisation, it needs to be staffed by a professional information specialist whose existence ensures that it is open throughout the day. Yet it must be acknowledged that in first and middle schools the full-time employment of such a person may not be financially viable.

- b) **School/public library liaison.** Efforts should be made to ensure that a school library's bibliographic tools correspond as far as possible to those in the local public libraries. The presence of such aids in one type of library will encourage users' understanding of those in the other. As Hooten (1989: 272) notes, youngsters "thrive on consistency", and Dobson (2000: 67) has recommended similar continuity. Commonality of terminology across libraries of both types is also important. Whilst it is unlikely that, in first and middle schools, the library will be administered by a professional librarian, improved liaison between the teacher in charge and the public library service may help make certain that labelling of items in the school library matches that in the public library. In-service sessions run by public librarians for school staff would foster the use of consistent terminology across both organisations and encourage the transmission to youngsters of similar messages.

- c) **Training of teachers in charge of libraries.** Where teachers responsible for the school library lack the appropriate background in LIS, attendance at courses must be arranged to increase their expertise in this area within the context of their continuing professional development. In the study, the ignorance of some of the teachers in charge of their school library was disconcerting. One (L/G-1/II/6), for example, was not certain that a catalogue was a list of library books and was unsure as to the difference between such a catalogue and a subject index.

3.2.2.2.2 Teaching of Information Skills

- a) **Appreciation of the whole “information world”.** Youngsters need to be familiarised with the different sources, resources and organisations from which they can obtain information. The strengths and weaknesses of each should be considered and the circumstances where they are useful identified. Variables such as the amount of information that might be obtained from particular sources, its likely form and its up-to-dateness should also be addressed. Pupils must understand what they can anticipate from these providers and what is unrealistic. If a school library policy for materials acquisition exists, then youngsters should be made aware of it so that they may know the sorts of items they can expect the collection to include. Common misconceptions must be dispelled. Possible confusion over the role of bodies like Tourist Information Centres should be resolved, and the wide variety of types of information that can be found in books explained. The actual opening hours of local public libraries should be clarified. Coverage should also be given to how organisations such as embassies and travel agencies can be exploited even though these may appear to have only a peripheral information-providing function.

The legitimacy of approaching people must be established. A similar recommendation relating to the importance of stressing the value of other people has been made by Latrobe and Havener (1997: 199). Within the Whitley Bay study, the Headteacher of School C-1 (HT/C-1/II/1) admitted that, at least in her school, the role of people as information sources was not often discussed. Traditionally, this is an area to which little attention has been devoted. Indeed, Cheuk (1999) writes that it is tempting to rush to the conclusion that a student is “information illiterate” if he or she seeks information from friends rather than using more formal and authoritative sources. Nevertheless, current indications suggest that trends are changing. A feature of the “Communication” unit within the Government’s “Key Skills” programme (Qualifications and Curriculum Authority, 2000) introduced in September 2000 is the prominence given to other people as information sources.

- b) **Educator/pupil collaboration.** Youngsters should be encouraged to discuss, in a non-threatening atmosphere, the difficulties they encounter in information-seeking situations. It is possible that older pupils, who might distrust the school librarian, could be wary of such sessions. Here consideration should be given to the use of an external information specialist, although care must be taken to ensure that the attitudes of such a person are consistent with the school’s ethos. It may emerge that the term, “librarian”, has unfavourable connotations for youngsters who are non-library users, and the external professional may be introduced as an “information navigator” an “information facilitator” in the language of Elkin (1996: 245). The problems raised by the youngsters should, as far as possible, inform the subsequent teaching of Information Skills, and provide initial indications of where particular emphasis should be placed. In this way, a more interactive, less didactic atmosphere may be fostered in Information Skills sessions. If the

discussion is widened to include problems involving time management, the presentation of talks and the structuring of essays, these may be dealt with in separate “study skills” sessions at a later date.

Pupils should also be asked to describe unorthodox or idiosyncratic information-seeking methods that they have employed and their merits should be considered in turn. Where these are agreed to be of limited value, their use should be discouraged in the subsequent teaching. Information Skills teaching programmes have typically emphasised the importance of adopting a recommended course of action when finding and using information. Relatively little attention has been paid to the identification of “bad habits” prevalent among youngsters and advising against them. If the reasons why such practices have been pursued are discussed by the educator but counter arguments to draw attention to their shortcomings are offered, the latter are more likely to be accepted by the pupils. Efforts should also be made to address specifically the following areas:

- ***sequential use of books.*** The dangers of missing appropriate content as a result of simply moving cursorily through the pages of a book from start to finish must be highlighted, especially in circumstances where the youngster concentrates much attention on pictures with a view to using them as clues to the presence of appropriate nearby content. It should be explained that this method works only if the information required is illustrated with a suitable picture. It appears difficult to discourage users from viewing books as a resource to be accessed from front to back in the style of picture books and fiction. Whilst reasons for youngsters’ inclinations to follow a sequential approach should be discussed and the weaknesses as well as strengths of contents pages and indexes acknowledged, youngsters should be made aware of their value and the circumstances when each is useful;
 - ***surrogate information-seeking.*** Despite the fact that it may be convenient and expedient, youngsters should be discouraged from asking others to seek information for them from resources such as the Internet and organisations like public libraries as this behaviour prevents youngsters from developing an understanding of both the associated tools and the skills involved. On occasions, they may not even be aware of the specific sources the adult has consulted. The shift in approach can perhaps best be promoted if educators stress more actively the importance of process rather than product.
- c) **Need-oriented information-seeking.** Youngsters should be introduced to a range of need situations that demand suitable information-seeking action. The sources appropriate to these needs should then be considered. These may be likened to tools within a box, with inquirers selecting that which is most suitable for dealing with a given need in the same way that a craftsman chooses the tool that will be most effective when tackling a certain job. Pupils should see that information-seeking involves the making of choices, rather than following a rigid formula. They should also be asked to undertake an actual information search on a favourite subject, using a variety of suitable resources and with the information specialist available to deliver process support as necessary. The key stages should include the following.
- A search strategy should be planned in advance of approaches being made to particular sources. This may begin with the recommendation by the educator of a system of planning like that employed by one of the study participants (Toby, Y11/B-3/II/87). Where his essential information needs could be determined in the early stages of work on a project, he indicated the areas in which material was required and alongside stated the likely sources to be employed or methods through which the information might be gained. Although clearly this strategy is not appropriate for every assignment, its

success for the informant suggests that its adoption by other pupils should be investigated. From the information professional's viewpoint, it is attractive in stressing the truly organic link between information needs and seeking behaviour.

Initial consideration should be given by the inquirer to the sources available with a view to isolating those that might be useful. Youngsters must be urged to look beyond the first providers that spring to mind and those upon which they have come to rely, such as "Encarta", with the aim of amassing a wealth of material from which they can choose during the later phase of information use. Where appropriate, youngsters should be asked to consider the use of the public library. More specific preparations for the exploitation of individual resources should then be made. Strategies for the use of search engines, for example, should be drafted in advance of the pupils' actual interactions with the computer. Their plans should list several search terms, including any "obvious" words and suitable synonyms. Broader and narrower terms should be formulated, the former for use if insufficient references are initially retrieved and the latter if there are too many. As the search is being conducted on a subject of personal interest to the inquirer, he or she is likely to be aware of the most useful search terms and of the manner in which the topic itself relates to broader and narrower areas of knowledge. The opportunity should also be seized to introduce Boolean logic. The finding tools typically provided in the public library should be discussed and the respective circumstances when each should be exploited elucidated. The role of each approach offered by the catalogue should be covered so that youngsters are well equipped to decide which is most suitable to meet their purposes in particular circumstances. The chosen approach should be indicated in their written search strategy.

- As the youngsters interact with sources, opportunities to reinforce good practice must be seized in order that pupils see for themselves the value of the recommended approaches.
- Retrieved material should be evaluated in terms of the need. Graef (2000) argues in relation to the evaluation of information on the Internet that users must develop a critical language to help us "test what we see". This may commence with youngsters being trained to ask generic questions of the content they encounter, an approach which is basically an extension of that pursued over many years by History teachers, who have accustomed their pupils to looking for bias when investigating primary source material. As the youngsters are likely to know at least a little about their chosen subject, the learning of evaluative skills may be less challenging than if they were searching on an assigned topic.
- The overall information-seeking process should be reviewed. Members of the class should discuss the effectiveness of their efforts, sharing their successes and failures for their mutual development.

In order to encourage transferability, it should be indicated that the principles taught during the course of the work are of general application and are not confined to the search at hand. The fact that youngsters will have seen the benefits of the advised approaches within the contexts of topics that are genuinely meaningful to them may increase the likelihood of their long-term adoption. The key areas discussed above, including the generic questions for evaluation, may be summarised on a laminated handout disseminated to pupils, who should be encouraged to consult it whenever a major information search is undertaken.

Thought should be given to the repetition of the above work in relation to a stipulated curriculum topic. At higher school levels this will involve liaison with subject teachers, who may choose to devise a task that requires the use of materials of particular types. The handout should be followed closely and, if

weaknesses in its guidance emerge, these may be discussed in the final review and the sheet amended for future use. The challenge to the information specialist then lies in ensuring that the skills taught during the course of these sessions are internalised by the pupils and their employment is carried over to other contexts.

- d) **Terminology.** In order to facilitate clarity of communication and improve linguistic conciseness, continual emphasis must be given to the importance of youngsters learning the correct language associated with librarianship and IT. Particular confusion seems, at present, to arise in relation to library assistants/librarians, subject indexes, microfiche readers, inter-library loans and search engines.

3.2.2.2.3 IT access

- a) **Integration of school libraries and IT areas.** The principle that a diversity of resources exist in our “information world” can be reinforced if school libraries combine traditional and electronic materials. This allows the library itself to be portrayed as a microcosm of such a world, affording access to physical sources, like books, journals and newspapers, and to the wider, virtual domain, via computers.
- b) **Pupil allocations.** Schools must periodically assess the effectiveness of the allotments of Internet time pupils are allowed when free access is provided. A balance must be struck between allowing a youngster a sufficient period for productive work to be undertaken and making allocations so long that they deny access to others, thereby fuelling discontent. Perhaps priority should be given to those who lack home Internet access, although such positive discrimination might appear unfair to those who do not benefit.
- c) **Computer clubs.** These offered the only opportunities for some youngsters in the first two school phases to use the Internet for purposes other than school work. Consideration should be given to extending such clubs, where possible, although obviously such a move would involve staffing and resource implications.

In addition to widening access to the Internet, computer clubs may serve a secondary function. Tabberer (2000), Chief Executive of the Teacher Training Agency, has recognised the importance of understanding the purposes for which youngsters use the Internet and finding “a way of bridging what’s going on in schools and homes”. By offering youngsters less structured and regimented access to the Internet, computer clubs afford their supervisors a valuable insight into the sites that youngsters use of their own volition. Problems that they encounter in their interactions may also be revealed. These could inform subsequent formal teaching of Internet skills.

3.2.2.2.4 Other information-oriented practices

- a) **Stock selection.** Before selecting materials for acquisition, teachers and school librarians should pay greater attention to the results of research examining the problems experienced by youngsters using subject books. The temptation of buying books simply because they address the necessary content must be resisted, even though to choose a text on the basis of its vocabulary, print size, layout, arrangement, etc. may necessitate a reasonably detailed first-hand examination. Even without developing a knowledge of research in this area, educators can address the problems by purchasing books of varying complexities and styles of presentation as far as costs allow.
- b) **School visits to the public library.** More visits by school parties should be made to local public libraries. Pupils who are non-users would receive an opportunity to exploit an additional information channel, and, if

they were stimulated by the experience and found material of value to them, their own independent use of the public library might begin. Moreover, all youngsters could benefit from the opportunity to develop their Library Skills under supervision.

- c) **Investigation of appropriate Web sites and dissemination of their details.** Teachers and school librarians should explore more actively and on a regular basis Internet sites with a view to identifying those that provide appropriate and trustworthy information on topics studied by their pupils during the academic year. Their details should then be disseminated to the youngsters when the subjects are covered in class and, if appropriate, when Information Skills sessions take place.
- d) **The value of pupil notes.** The wisdom of the long-established practice of youngsters making notes at school must be questioned. Results from the project suggest that even "A" Level pupils find the skill difficult to develop, and the notes produced may be illegible, inaccurate and superficial, and make little sense on later reading. Study participants had very little confidence in these materials and some considered them totally untrustworthy. Either more attention must be given to the teaching of effective notemaking skills or alternative pedagogical methods should be investigated.

3.2.2.3 Tourist Information Centres

Consideration should be given to extending the remit of these organisations to include local history/studies, as well as coverage of the amenities and sites of interest in an area. Youngsters already appear to approach Tourist Information Centres expecting local studies information and development of this aspect would still be consistent with the general area of their business. It may also find favour with visiting tourists, who are the principal targets of the current service.

PART VII:
PART VII: METHODS AND APPROACHES - A REFLECTIVE ASSESSMENT

- Chapter Twenty-one - Review of the Project

CHAPTER TWENTY-ONE

REVIEW OF THE PROJECT

This final chapter of the thesis evaluates the work that has been carried out, identifying areas of success, highlighting problems and proposing how the project could be improved should a similar investigation be undertaken in the future. The approach of the chapter is, again, broadly chronological, and it progresses from issues concerning the sample to the analysis of data and the writing up of the study. The chapter concludes by considering the wider relevance of the work in relation to other settings.

1 THE SAMPLE

1.1 The town of Whitley Bay

As explained in Chapter Ten, one of the motives for selecting Whitley Bay as the case study town derived from the fact that a high school within the locality had pioneered an intranet that was to make available common learning resources to all the schools in the Whitley Bay Pyramid. Unfortunately, it transpired during data collection that use of this facility was minimal within the organisations taking part in the study. The Monkseaton Grid for Learning was launched in December 1997, at a meeting in which staff from all schools interested in using it were supplied with a modem and the necessary software. The rationale was explained and teachers given training in the installation and use of the equipment. Over the following months, however, enthusiasm for the Grid waned in these schools and, by the time fieldwork for the project took place, it had largely lapsed into disuse. This discovery came as a blow to the investigator because it removed the prospect of covering within the project the way in which youngsters from different educational phases exploited a common information resource.

1.2 The youngsters interviewed

The fact that informants should be considered “pupils of Whitley Bay schools”, rather than “Whitley Bay youngsters” as was originally intended, has already been acknowledged. The implications of this difference are especially pertinent in the post-sixteen high school subphase, as only those who were voluntarily remaining at school after the age of compulsory education could be interviewed, thereby raising the possibility that the composition of this group was less representative of youngsters in general than that of groups at pre-sixteen levels. However, these problems were limited to some extent by the fact that retention rates at School B-3 were as high as 70%. Nevertheless, Sixth Form interviewees were not entirely typical of the broader pupil population of this age in the school. All Sixth Formers contributing data were studying for “A” Level qualifications and those taking other courses were unrepresented. Since Westerhein’s (1986: 108) argument that use of the public library is greatest among those in full-time education suggests that there may be significant differences in the information behaviour of those in this group and those outside it, consideration should be given to a future project comparing the needs and behaviour of youngsters in the two different categories.

For the purposes of cross-phase consistency, the researcher would have liked to have interviewed the same number of pupils in each of the first, middle and high school levels. In the event, fewer high schoolers were interviewed than youngsters in any other school phase. This was mainly a consequence of the fact that

more first schools were sampled than middle schools and more middle schools than high schools. These discrepancies were not altogether counterbalanced by increasing the numbers drawn from the year groups in the higher school phases. Nevertheless, since the study is qualitative, rather than quantitative, it was not thought to be vital that the numbers of informants in each year group should be precisely the same, and care was taken to ensure that those interviewed individually in each of the six school subphases at least equalled the minimum threshold specified by Lincoln and Guba (1985: 235). Still, the prevalence charts provided in the chapters of results must be understood from the perspective that there were fewer high schoolers than middle schoolers contributing data and fewer middle schoolers than first schoolers.

If a quantitative study had been undertaken and an attempt made to construct a developmental picture of youngsters' ideas, needs and behaviour on the basis of contrasting frequencies in the occurrences of individual categories of data, rather than qualitative differences in their articulations and pictures, the provision of similar sample sizes in each of the fourteen year groups might have been essential. Here identical numbers might be considered a prerequisite if meaningful comparisons were to be made. Since the differences in numbers of first, middle and high schools within an area clearly cause complications when attempting to construct a sample evenly balanced in terms of the ages of participants, the use of schools as the primary sample units in order to converge on individual youngsters appears far from ideal, although few other strategies allow youngsters of such a wide range of ages, abilities and backgrounds to be approached.

2 DATA ELICITATION TECHNIQUES

2.1 In relation to information needs and information-seeking

It became apparent during formative data analysis that, throughout all school phases, many youngsters were not using the correct terminology when describing artefacts such as library subject indexes and microfiche readers. This led the researcher to question the whole basis of his mode of inquiry. Given the linguistic problems, he wondered if his informants had been able to convey their experiences sufficiently accurately or precisely for his study to be trustworthy. Attempts to confirm the data contributed by the informants produced a much more optimistic picture, however. When youngsters reported needs for school-related information, these were checked against materials such as schemes of work and programmes of study, whilst their descriptions of subject indexes were compared with the objects themselves. On each occasion, the verifiable details in the youngsters' stories and ideas proved accurate. It would appear, therefore, that much of the vagueness of informants' descriptions resulted simply from their ignorance of the correct names for items of specialist equipment. When these were described in terms of their readily apparent characteristics, few problems emerged.

The researcher recognised from the outset that, because his research technique involved asking youngsters about needs that they had actually felt, and were of the "conscious" need type identified by Taylor (1968: 182), some areas addressed in previous need typologies were unlikely to emerge. These included skills information, relating to, for example, reading, a process that informants might learn without realising of their own volition the necessity to do so, and aspects of health and safety in which the youngsters' requirements were anticipated by adults. Thus, the study should be regarded as providing only a *partial* record of the information needs of young people, and the reader may well identify, through reflection on his or her own experience, gaps in either the types within the typology or the subgroups within them. The project should be

considered alongside others which, when viewed as a whole, provide a more comprehensive account than previously, although it may not necessarily be completely consistent. If a more complete picture of young people's information needs were to be presented in a single study, a normative element involving coverage of needs defined by professionals working regularly with young people should be incorporated. Such provision was considered undesirable within the Whitley Bay project, the focus of which was intended to be the ideas and experiences of young people themselves. Any study combining data from both youngsters and adults would have to be carefully balanced to ensure that due attention was given to the data contributed by both parties. Even within this work, with its emphasis on the ideas of youngsters very much to the fore, striking such a balance proved challenging. Some of the information obtained from school personnel has been included when providing background details of the organisations serving as fieldwork centres. However, other data contributed by the adults related to the problems they believed were encountered by youngsters seeking information. Since the inclusion of much of this material would have shifted the focus of the work beyond the experiences of the youngsters themselves, most of it has been omitted.

Substantial differences emerged in how youngsters of different ages responded to the question that explored situations in their lives giving rise to information-seeking behaviour. The youngest participants generally acted on impulse and described an instance that they recalled immediately. Older informants readily identified a range of such situations and had to make a conscious decision to select one before making a verbal response. Toby's (Y11/B-3/II/87) reaction was typical. When presented with the researcher's list of types of situations, he replied, "Crikey! All of the above, really. Now, where shall I start...?" Bradley¹³'s (Y12-Y13/B-3/FG/9) behaviour was similar. After he had heard the researcher's scenario list, he commented, "I've been through all of those things just doing my 'A' Levels!" Although the larger numbers of situations that immediately came to mind in the high schoolers may be attributed to their greater experience of situations falling within the stated categories, it is also possible that younger informants struggled to remember such events or were less equipped intellectually to relate the investigator's question to their own circumstances.

When asked about specific life situations, many participants, unsure of the level of detail they should provide in recounting their experiences and perhaps initially apprehensive in talking about their own lives, spoke in highly general terms. The researcher then had to probe in order to elicit the detail he sought. A particular shortcoming in the early responses of youngsters in relation to school-required needs lay in their tendency to talk in terms of a general curriculum area, rather than the actual topic, and then to emphasise the topic rather than the nature of the assignment itself.

The technique of linking needs and seeking behaviour in the interview questions proved highly successful. Not only did it provide a logical flow to the dialogues but discussion of the action that informants took in response to their needs also promoted an understanding on the part of the investigator of information-seeking genuinely in context, as informants naturally referred back to the particular circumstances of their need situation when describing their information-seeking action. The questioning assumed though that the youngster not only remembered but was also aware of the action that had been taken. As Faibisoff and Ely (1976: 8) point out, "the process of decision-making [in relation to information-seeking] is very frequently an unconscious one."

It is doubtful whether the data elicitation techniques employed in the study could be used with children any younger than Reception age since some of the youngest informants failed from time to time to

provide appropriate answers to questions. Chantal^R (R-Y2/G-1/FG/1), for example, when asked how she could find out about how to feed her pet, responded, "By giving them seed."

2.1.1 Deviation from original research design

In the original design it was determined that only life situations emerging recently should be investigated. During the actual fieldwork, however, some youngsters recalled events from several years earlier which had made a considerable impression on them. It was realised that since these experiences were clearly very important to the informants, data relating to them should not be discarded simply because it did not fall within the stipulated timescale. Nevertheless, after the reporting of these stories, youngsters were encouraged to provide data pertaining to the recent past, in accordance with original intentions.

2.2 In relation to understanding of the term, "information"

Whilst the techniques involving examination of youngsters' information needs and information-seeking behaviour were based on those employed in past research by Dervin et al (1976: 26-27), there was no previous work in relation to the exploration of the concept of "information" upon which the project could build. The use of a range of methods to investigate this area was considered essential. In particular, it was recognised that the drawing activity should be employed in concert with other techniques, especially as it was thought not to offer sufficient provision for youngsters to record internal processes associated with "information" but, in the event, several attempts were made in "scenario" pictures to show thinking behaviour such as the identification of information needs. This runs somewhat contrary to the argument of Newton and Newton (1992: 345) in relation to their own research involving the drawing of scientists. They suggest that techniques of this kind may be incapable of revealing children's ideas with respect to mental processes. Nevertheless, since pictures were thought to lend themselves more readily to the representation of tangible objects, it was realised that opportunities for youngsters to use words would be necessary if scope was to be offered for more abstract concepts to be easily reported.

A further charge that may be levelled against the drawing technique is that, where youngsters were keen to depict information sources, they might be tempted to sketch those that could be most easily represented, such as books and computers, and the real diversity of their ideas might remain concealed. Evidence for this suspicion comes from the informants' own views. Pamela⁸ (Y7-Y8/C-2/FG/5) suggested that youngsters might depict computers rather than people because the former were easier to draw. Eileen (Y12/B-3/II/66) agreed, admitting that she, herself, was "not very good at drawing people", although she made an effort to do so, and Joan (Y4/C-1/II/52) considered that, from the sources that might be sketched, books were probably the least challenging to represent.

The drawing technique assumes, too, of course, that participants wishing to depict a certain information provider possess a mental image of its appearance. It is possible that a young child may associate the Internet, for example, with information but, unless he or she has actual experience of its use, may not be able to conceive of an appropriate picture. Furthermore, the fact that many high schoolers, in particular, were very sensitive about their ability to sketch suggests that the drawing technique itself may have presented a barrier. Even some of the first schoolers either belittled their sketches, criticising their neatness or accuracy, or voiced their concern at what they believed to be their inability to draw what they wanted to represent. Certainly

the fact that the ideas underpinning some of the pictures drawn were not always immediately apparent vindicated the researcher's decision to request each youngster to describe in words what had been sketched. In a future project, these problems could perhaps be overcome by asking participants simply to state orally what they might draw if they were required to do so. Such a scenario might still lead to coverage of tangible objects, however, rather than internal processes. Nevertheless, despite these misgivings, the investigator considered that the drawing technique had been worthwhile, especially as it played a key role in enabling him to collect data on young people's concepts using a range of methods, an approach that exploited their particular strengths in different areas. Furthermore, since the youngest children often made their sketches with specific experiences in mind, the drawing task also stimulated further discussion of individual information encounters and information needs.

The investigator's introduction to the drawing task was left deliberately vague to allow participants the opportunity to draw pictures of a range of kinds but many youngsters expected more specific instruction. This may be indicative of the way in which pupils are accustomed to a higher level of prescription when tackling many tasks at school. Some wanted to know if they were permitted to write words in addition to, or instead of, drawing a picture. Others sought further guidance on what they were expected to show. When making their drawings, youngsters responded in quite different ways. Most sketched a single object and, after completing it, announced that they were "finished" but a few used the time available to stage a personal brainstorm and drew successive pictures until they were halted by the researcher who believed that sufficient time had been allocated to the activity. With hindsight, greater consistency of response could have been ensured if the youngsters had been given more specific direction before the task began but this would also have led to the session taking on more of the characteristics of a school lesson, which the investigator was keen to avoid. Wherever possible he pursued a similar line to that of McGregor (1993: 46) who writes, in relation to her own research, that she took care "to avoid doing things that would cause students to see her in a teaching role".

Just as the youngsters produced varying numbers of pictures when undertaking the drawing task, they responded in different ways to the later question about how information might be obtained. Some talked in terms of sources that they had actually used or even employed routinely, whilst others mentioned less obvious information providers. Again, greater clarification would have ensured a more consistent form of response. Substantial differences also emerged between the numbers of providers drawn by the participants and the numbers of those to which they referred in the later oral exchanges when means of gaining information were discussed. Most informants drew only one picture but quoted several providers in the dialogues. One possible explanation for the discrepancy is that the drawing of pictures required more time and effort than simply mentioning them.

3 DATA COLLECTION SESSIONS

3.1 Timing of the fieldwork

Only the Headteacher of School B-3 (HT/B-3/II/3) recommended a particular time of year when he considered that the researcher's fieldwork in his organisation should take place. His advice was based on the fact that there were certain points within the year when many members of the upper school were away on leave of absence for external exams. He also suggested scheduling the fieldwork some weeks before this period as he

believed that, with leave of absence imminent, many pupils became apathetic towards school and were unlikely to make the effort necessary to take part in the study. Thus, fieldwork here was organised at an early stage and that at other schools was made to fit around it.

Despite the researcher's aim to stage the fieldwork over as short a period as possible so as to facilitate comparison of the data, the phase of principal data collection was spread over some six months. This was partly a result of the fact that so many sessions were involved, i.e. 133 in total, and no data collection could take place at certain times of the year, such as school holidays. The length of the phase of principal data collection proved a cause of concern as Wood (1969: 264) draws attention to the manner in which, during investigations where fieldwork is undertaken over a prolonged period, variations in the data may be due to changing situations, and the material collected at different times may not be comparable. Difficulties of comparability emerged especially obviously in relation to the information needs strand. Some needs were highly seasonal, such as advice on the buying of gifts for others, which was most evident in youngsters interviewed immediately after Christmas. In the same way, many teenagers who contributed their data in March and April wanted information to help them select subjects that they would study in the following two academic years.

To moderate the impact of such seasonal variations, opportunities should be explored for future research to pursue a longitudinal perspective of young people's information needs, with the same pupils sampled at different times in the school year. In the Whitley Bay project, informants were approached for data just once and the picture of information need that emerged was something of a "snapshot" only. Faibisoff and Ely (1976: 5) note the problems with this technique, commenting that the information needs revealed are "colored by salient needs at the time of response". However, the logistical challenges in arranging, for example, three periods of data collection distributed roughly evenly during the academic year must be acknowledged. They are particularly pronounced in the high school, where, in the final term of the year, pupils in Year Eleven and Year Thirteen are undertaking GCSE and "A" Level exams respectively and, prior to the actual tests, the oldest pupils are away on leave of absence. Younger people in Years Two, Six and Nine are involved in SATs. When the idea of a longitudinal study was discussed with the Headteacher of School B-3 (HT/B-3/II/10), he suggested that any project which involved the collection of data after March and early April from youngsters in Year Thirteen would be difficult since, by this stage, they would be so focused on their coming exams that the task of arousing their enthusiasm for any other activity would be very hard and willing informants would not be easily found. With reference to more specific circumstances within his school, the Headteacher explained that Year Twelve pupils were away on work experience the week after the researcher's sessions finished and, within a month of his last interviews at the beginning of April, classes had ended for Year Eleven youngsters. The clearly considerable problems involved in sampling the same youngsters at different stages in the school year ultimately led the investigator to conclude that, if such a longitudinal study were to be undertaken, sampling might best be carried out beyond the school environment.

3.2 Scheduling of the dialogues

The scheduling of the data collection sessions within the school day followed one of two patterns, depending on the wishes of the Headteacher. In the first schools, the investigator was asked to conduct his interviews over the whole school day. This meant that his time within these organisations was concentrated in a short period.

In the middle and high schools, it was agreed that dialogues would be held over lunch and assembly periods in order to prevent disruption to lessons. Here the fieldwork was spread over a longer timespan. The main benefit of the brevity of the data collection phase within each first school was that there was limited opportunity for societal and educational changes during the course of the period of fieldwork. Conversely, with many interviews taking place in a single day, a backlog of recordings for transcription quickly accumulated. Since it took approximately six times as long to prepare a transcript as to conduct the interview, large blocks of time were required for the transcribing process. Furthermore, as one dialogue quickly followed another, time for reflection had to be created at the end of the school day, rather than after each interview, and some of the immediacy of the investigator's reactions was inevitably lost.

3.3 Content

It was expected that discussion of the youngsters' anxieties might pose problems in the data collection sessions, with informants perhaps reluctant to discuss them in the belief that they themselves would appear inadequate. Youngsters of all ages, however, talked with surprising openness, although it became apparent that older pupils typically tended to speak about school-related matters first and, as their confidence and familiarity with the investigator developed and a true rapport was established, moved on to more personal or sensitive matters later in the exchanges.

Many of the strengths and weaknesses of focus groups, in particular, were readily apparent when the content of these sessions was analysed. The benefit of genuine peer group interaction was most obvious in the upper focus group within School C-2 (Y7-Y8/C-2/FG/5), where participants gradually reached conclusions about the origin of information by challenging each others' ideas until they had produced a statement of how information was "made" with which all five members agreed. It is unlikely that articulations from the researcher would have stimulated such a reaction. In a more negative vein, instances emerged in other groups where participants dwelt on a certain area of information need simply because a comment by one youngster triggered related ideas among his or her colleagues. This was especially true in the junior focus group within School C-1 (R-Y2/C-1/FG/7), in which much time was spent discussing medical ailments, possibly to the detriment of coverage of other areas. Care had to be taken within the thesis to ensure that, in reporting the youngsters' experiences, it was made apparent to the reader that certain related issues had been articulated in a *single* focus group. Matters such as medical issues were especially popular subjects for discussion in individual focus groups within the first schools, perhaps because they were common to children of various ages, whereas school-required subject needs were often felt only by the oldest participants in the first school focus groups. The investigator's concern that stories involving medical ailments might be fabricated by participants simply in order to make themselves part of the group appears unfounded. Based on the informants' descriptions in response to the investigator's in-depth questions about these issues, there can be little doubt that such needs did exist. Some youngsters even revealed scars and bruises as evidence.

3.4 Conduct

No situations emerged in which youngsters simply refused to answer questions in individual interviews. Focus groups, however, presented more problems. In some, many contributions were made by two or three participants whilst others seldom or indeed never spoke. This was particularly true of the senior focus groups

in Schools C-1 and B-3. It may be no coincidence that the quietest individuals were the youngest in each group. In the first school phase, the unevenness in the levels of members' contributions was sometimes due to the belligerence of certain personalities, although it was usually the result of an apparent unwillingness of quieter participants to speak. Since the investigator was unfamiliar with most of the informants, he had no way of knowing if the reticence of these youngsters was consistent with their natural behaviour. Sometimes it proved difficult for the researcher to foster an inclusive atmosphere since, where a particular school-required subject information need unique to a class or year group was addressed, this inevitably led to the exclusion of some participants. When the value of particular information providers was discussed, it proved easier to involve youngsters of different ages, as a more general issue was under investigation. Were the study to be repeated, the focus groups should be formed from youngsters in only one year group. This strategy has been employed by Hayter (1998: 30). Single age groups would promote greater commonality across the members as well as increasing levels of peer group support. According to Krueger (1994: 14), such commonality is critical to successful focus groups. Within the study, Reception children, who were often diffident when in the company of others some two years their senior, might have found it easier to talk in a group consisting wholly of youngsters of their age. Indeed, the wide-ranging nature of the junior focus groups in the first schools proved an issue of concern. Participants varied from four-year-olds, who had just a few months' experience of mainstream school, to children of seven soon to take Keystage One SATs. At this early stage in the children's lives, a gap of some three years was considered too great. The problems resulting from the differences between children of varying ages were similar to difficulties encountered by Saunders (1993: 16). In the context of an investigation into teenagers and libraries, she describes how the diversity resulting from the inclusion of library users and non-users in the same focus group militated against "real debate" when the researchers "wanted to examine a topic in depth". Nevertheless, the problems of focus groups consisting of only youngsters of the same age must also be recognised. It is harder, for example, to assess commonality among informants of varying ages because youngsters from different age groups are contributing data independently, in separate focus groups.

4 RELATIONS BETWEEN THE INFORMANTS AND THE RESEARCHER

Perhaps because before the data collection sessions commenced every youngster selected for participation had received several opportunities to refuse to take part, all informants, even the high schoolers whom the researcher feared might distrust him, proved willing to answer his questions. Past investigators have met with comparable cooperation. Saunders (1993: 17), for example, found that the teenagers involved in a study devoted to young people and libraries were glad of the opportunity to offer their opinions and gave willing and thoughtful responses. Similarly, Fieguth and Bußmann (1997) describe how, in the CHILIAS Project, those between nine and twelve who were approached "seemed to feel as though their views were being taken seriously and enjoyed answering the questions". In the Whitley Bay study, many informants especially relished the chance to make criticisms of certain information providers and resources. Indeed, on occasion, the Internet and school libraries were targets for strong condemnation. On a more positive note, those with particular personal interests talked animatedly about both these and how they sought information pertaining to them.

A major area of concern, however, lay in the tactful execution of the iterative questioning technique. On occasion, inconsistencies in the data *did* emerge. In such circumstances it was often hard to gain

clarification without being seen to labour the issue under investigation. Similarly, when the researcher doubted the accuracy of particular accounts, it was difficult not to convey this disbelief to the informant. Problems also emerged when youngsters of limited confidence tried, often hesitantly, to offer their ideas in focus groups. Here the speaker had to be encouraged to continue, with implicit assurances that the contribution was of considerable value to the investigator, but he could not be seen to show approval for what was being said, since this might prompt others to articulate similar ideas in the belief that these were the "correct" responses. It was also realised that any impression that was given in which the researcher appeared to adjudicate on the merits of a particular account could lead youngsters to believe that he was, in fact, a teacher.

5 PROBLEMS ASSOCIATED WITH THE PROCESSES OF DATA ANALYSIS AND WRITING UP OF RESULTS

The stages of summative data analysis and recording of findings proved very time consuming. In fact, these were the only tasks for which the investigator substantially underestimated the time necessary for their completion. After the main phase of fieldwork ended in May 2000, the next year of the project was devoted to summative analysis of data and writing the three chapters of results.

Mainly as a result of the time taken in analysing the data and recording findings, the time lag between the last data collection dialogues and submission of the thesis was longer than was considered ideal. There would, of course, be a further delay before the study findings would be available to the academic community at large. In a world where information resources are developing so quickly, even the latest research into people's information-seeking seems scarcely to provide a picture of the current position when the work is read by others. At the time of writing, innovations in digital television are proceeding apace and the increasing competition among Internet service providers to reduce costs to users is encouraging greater domestic uptake of the resource. Although Schofield (2000: 82) draws attention to how change reduces the long-term utility of qualitative research generally, the speed of developments and innovation in the present information world are such that findings of studies in this area seem of especially ephemeral value.

5.1 In relation to the information needs strand

In a few instances it was not easy to separate circumstances in which youngsters were simply interested in a particular topic and those in which they actually wanted information. This was especially evident in sessions involving several boys who talked of their enthusiasm for football. It eventually became apparent that, although they enjoyed watching matches on television, they felt no inclination to learn more about the sport or aspects of it. Thus it cannot be assumed that an interest in an area leads to associated information needs.

Skills needs in leisure contexts also proved difficult to assess. Many youngsters attended sports classes of varying degrees of formality and most were genuinely keen to develop the skills necessary to make themselves into better players but others had no such ambitions and attended simply because they either enjoyed the game or relished meeting others. Only after penetrative probing and careful analysis of the data could the real purposes of the youngsters be ascertained.

A key problem with the life-centred approach employed lay in the fact that, since the needs in relation to which data was elicited were so varied, it was hard to form general conclusions about the overall nature of the information needs encountered. When the data was analysed, several of the types within the typology, such

as needs for advice and affective support, were seen to lie beyond the scope of many, although by no means all, past studies of information need. As a result, it proved challenging to determine the boundaries of the project, especially with respect to what is meant within the study by terms such as "information needs", although this was thought a small penalty to pay when such a wide-ranging insight into young people's information universes could be provided. The obvious option of removing "outlying" information needs and concentrating exclusively on those that involved, for example, the pursuit of recorded knowledge was rejected. It was believed that if, having analysed the data, the researcher "vetted" the types of information need and omitted some on the grounds that they did not match his perception of the types generally addressed in existing studies, he could be charged with presenting a distorted picture that was restricted by his preconceptions. Perhaps these problems could have been avoided had a less open question been posed in the data collection sessions - one in which fewer than the five situational strands actually used were included. Nevertheless, the question that was asked was heavily based on a similar, well recognised method employed by Dervin et al (1976: 26-27).

Particular issues emerging from the data proved highly intriguing and it was not easy for the investigator to determine the point at which coverage of them should cease. The matter of why some topics studied at school gave rise to school-inspired information needs whilst others did not and the reasons why some youngsters became particularly interested in certain sports, films, etc. were especially fascinating. Although the opinions of the informants can be reported and some conjecture attempted, these were felt to be questions that demanded a higher degree of analysis from a psychological perspective than could be afforded in this project, which was never envisaged as a study on that level.

5.2 In relation to the information-seeking strand

Just as the breadth of information needs elicited by the line of questioning posed difficulties for analysis, a similarly troublesome diversity was encountered in relation to the information-seeking strand, mainly because the youngsters were allowed to describe *any* ways in which they had acted on the needs that they had felt. The problem of whether or not particular forms of behaviour should be considered ways of learning, rather than forms of information-seeking, has already been addressed. Certainly many seem incongruous with the typical tendency to associate information-seeking with the acquisition of recorded knowledge from sources. It proved a temptation to give lesser priority to methods such as observation and exploration because they fall outside the "pursuit of recorded knowledge" category and there is little coverage of such techniques in many past studies of information-seeking. Again, the option of reporting information-seeking methods selectively was considered. According to Wilson (1981: 10), such an attitude is typical. He notes the frequency with which the means people use to discover information are analysed in terms of the investigator's view of "how the user *ought* to have been seeking information". Nevertheless, ultimately it was decided that the acquisition of recorded knowledge was simply one element within young people's information universes, and all action reportedly taken by the informants, whatever its kind, in response to needs they had identified was of equal merit and interest. A similar stance has been taken by Krikelas (1983: 14-17), who believes that recorded material, or "the literature", is only one of four forms of sources available to an inquirer. He conceives other people and recorded literature to form sources "external" to the seeker, whilst one's own memory and direct observation constitute "internal" sources.

The role of television proved difficult to determine. The challenge to the researcher lay in identifying the circumstances when a programme was watched specifically to satisfy certain information needs and when it was viewed more passively, not in response to any desire to learn more.

Some uncertainty also surrounded young children's use of public libraries. It was impossible on occasion to establish the extent to which the strategies for finding information within the building were those of the youngster and how far they were imposed by the parent. For some children, it might have been the case that the task of locating suitable materials on the shelves was undertaken entirely by the adult, although, in the data collection dialogue, the child reported the behaviour as if it were his or her own. Only through the use of observation could greater clarification of this area have been gained.

5.3 In relation to the information concept strand

Levitan (1980: 244) is critical of questions such as "What is information?", arguing that the interrogative, "what", "fosters description through reductionist thinking". She alleges that the subject under examination is deconstructed into elements which are scrutinised individually, thereby leading to fragmentation rather than synthesis. Within the context of the project, Levitan's charge has some validity. In summative analysis, data elicited by the question, "What do you think we mean by the word, 'information'?", was broken down into strands, each of which was initially considered in isolation and thus, in instances where informants provided definitions incorporating multiple strands, their *overall* meaning was temporarily lost. It was only when the definitions were re-examined for evidence of multiple strands that the youngsters' "compound understandings" became apparent.

During the data collection sessions, six areas were investigated when youngsters' concepts of "information" were addressed - reading and recognition of the term, picture-based understandings, use of the word in the informants' own articulations, their stated definitions of "information", information associations and sources/means of gaining information. The fact that such a fragmented approach was taken increased the difficulty of presenting a developmental picture in relation to this strand, since data pertaining to the six different elements had to be united. This contrasts with the situation regarding coverage of information needs, in which data was elicited initially by a single question.

6 PRODUCTS OF DATA ANALYSIS: THE ACTUAL RESULTS - UNEXPECTED OMISSIONS AND PATTERNS

6.1 In relation to information needs

The researcher identified in advance of the fieldwork a number of areas of need indicated in past studies which he believed would remain unaddressed in his project because of its emphasis on needs actually *felt* by informants. Whilst most of his assumptions proved correct, he was surprised by the eagerness of some young children to learn of their own volition skills associated with handwriting and mathematical calculation.

Several types of need emerged as highly prevalent in youngsters of a particular age or school phase, despite the fact that the researcher had originally thought that some such needs would be felt by youngsters of all ages. Needs for details of routines and arrangements within the home and school were found to be especially characteristic of the data of young children, even though one might assume that youngsters of any age would require this information. One explanation lies in the possibility that these were major areas of

concern for early years children, whilst, although they were still felt by their older counterparts, they perceived them to be trivial and either readily forgot them or chose not to report them. High schoolers were much more concerned about what was expected of them in terms of academic assignments.

Many, but not all, the worries and problems reported by high schoolers related to school. More personal needs were less common than in the earlier phases. This could be due to several factors, including the greater pressure on teenagers to perform successfully at school in a geographical area where the expectations of their parents and teachers were high, thereby leading to school-related needs emerging as especially pressing, and/or more pronounced feelings of self-consciousness on the part of older informants in admitting personal problems. Some might have been reluctant to give the impression of being vulnerable at a time when they were striving for greater independence. It must also be stressed that there were fewer high schoolers contributing data than informants in schools in lower phases so a smaller number of more personal needs might be expected. In addition, given that high schoolers typically recognised that many of their experiences fell into the categories defined in the question that they were asked, it might be that "softer" areas were simply thought of as less important at the time of the dialogue and so remained unarticulated. It is possible, too, of course, that needs associated with such problems had simply not been felt by the youngsters at the time immediately preceding the data collection sessions. Indeed, Krikelas (1983: 10) highlights the tendency within several past studies for a substantial proportion of those approached to indicate that they had no "problems or questions". He continues, "There is no natural law that requires everyone to have an information need at the time of the study." Nevertheless, one would expect those without such needs to be spread through the sample, whereas non-school-related problems were widely disclosed by first and middle schoolers.

The personal problems reported by youngsters of all ages were quite different in nature from those described by several previous researchers. Gratch (1978: 18), Marshall (1982: 38) and Herman (1983: 77) have drawn attention to the importance to youngsters of "crisis type" information on matters like pregnancy, abortion, violence and drug and alcohol abuse. Although these needs might have been experienced by the Whitley Bay youngsters and the study simply did not reveal them, it must also be understood that the fieldwork was conducted in an area of some affluence and with few social problems. That they have been noted in some past studies does not, of course, mean that they necessarily affected the Whitley Bay informants. The issues described by youngsters that come closest to the "crises" reported by Gratch, Marshall and Herman involved bullying, problems between parents, breakdowns in relationships with friends and the death of friends or members of the family. The fact that needs were reported in relation to these areas indicates that the inquiry method employed was able to elicit data on sensitive and emotional matters. In terms of less personal requirements, little evidence was found of a desire among informants to learn about societal and global problems, which Kinnell (1994: 74-75, 79) and Overmyer (1995: 39) believe are popular subjects of interest among young people, and, although Marshall (1975: 137) considers that an enthusiasm for current events of a political, financial or social nature is prevalent among Sixth Formers, limited interest was detected in any world affairs other than those of a sporting variety.

Information needs of a sexual nature formed another area in which significant differences emerged between the needs reported by the participants and those highlighted in previous projects. They were rarely mentioned by the Whitley Bay youngsters, despite the fact that Chelton (1985: 22), Murray (1985: 60, 61), Walter (1994: 122) and Bennett (1998: 24) all comment on the popularity of needs of this type, especially

among boys. In the Whitley Bay study, they were reported only when material on this subject was required for school homework. Initially, it was believed that informants might have been too embarrassed or inhibited to draw attention to sex-related information needs but, on closer investigation, another explanation appears equally likely. All three schools in the highest phases provided classes in PSE. Scrutiny of the schemes of work for these sessions revealed coverage of Sex Education to be an integral part of the study programmes. In addition, youngsters might have received information provided proactively by their parents. As indicated previously, needs that were anticipated by adults who then offered appropriate provision remained unreported by the youngsters. This pattern within the research may mirror wider tendencies in relation to information needs. Krikelas (1983: 11) writes, "A decline in information need can be attributed to... the establishment of some information-giving service which satisfies the need."

6.2 In relation to information-seeking

Surprisingly little use of magazines was reported by female informants. As it is difficult to believe that such materials were scarcely read, it would seem more likely that the questioning technique employed simply did not uncover their use, perhaps because girls may not consult magazines for "hard" information in the manner of boys. They may be read more passively and without a conscious desire to find out about a topic. It is interesting that only one girl (Kirsty, Y8/D-2/II/99) drew a picture of magazines when youngsters were asked to produce sketches in response to the term, "information", and, in relation to the same strand, no females orally cited magazines as possible information sources.

7 PRODUCTS OF SECOND-ORDER SYNTHESIS

7.1 The information-seeking models

A dilemma emerged during the preparation of the five information-seeking models, namely the extent to which they should be grounded exclusively in the data. Two approaches were considered. Firstly, models based solely on the data collected could be created, with the researcher ignoring any possibilities, however apparently logical, that had not been detected during data analysis. Alternatively, inputs into the models could include both the data itself and complementary "grounded intuition" on the part of the investigator. By allowing the inclusion of possibilities which, although rooted in common sense, were not seen in the actual data, the scope of the models could be extended. Ultimately, the first option was selected in the belief that to embrace intuitive possibilities would shift the models too much from the truly grounded approach that had been intended. Furthermore, any additions made by the researcher on his own initiative might ultimately prove erroneous. Here his credibility might be under threat as he would have no specific data to support his position if certain intuitive possibilities were questioned by others.

7.2 The developmental commentary

Criticism may be made of the developmental pictures presented on the grounds that they are rooted in the principle that youngsters grow up against a constant technological background, specifically that pertaining to youngsters within the case study town at the turn of the millennium, when the fieldwork was carried out. In practice, of course, technology progresses and the world changes. Thus information-seeking conditions for a four-year-old may be very different from those prevailing when that youngster is a teenager some ten years

later. Since these innovations cannot be predicted, however, a constant background that was "current" at the time of writing was assumed when defining the developmental stages.

8 WIDER RELEVANCE OF THE STUDY

The results of the study must be understood within the context of the particular characteristics of the geographical area and schools in which the fieldwork was carried out. In order to assess the extent to which findings may be true of youngsters in other settings, similar projects employing the same methods but conducted in contrasting environments would be of great value. As Kuhlthau (1999b: 12) and Gomm, Hammersley and Foster (2000: 107) recognise, however, it is rare for such complementary work to be undertaken. Nevertheless, if the project were to be repeated elsewhere, it could involve sampling youngsters within organisations such as City Technology Colleges, where both teaching and the curriculum might be less traditional and more practically-oriented. Here school-related information needs might be of a somewhat different character. Similarly, as North Tyneside's Senior Inspector of Schools (I/LEA/II/1) indicated, if fieldwork were to be staged in a less affluent area it is unlikely that informants would be so reliant on computers and books within the home. The accumulation of findings from studies staged in different settings might enable a more inclusive, overall picture to be gained. A similar line has been taken by Gross (1998: 6), in relation to her work on imposed queries in school libraries. She writes of the "multiple environments" in which the phenomenon of her interest takes place and believes her study to provide a "baseline understanding" with which the results of subsequent work should be compared. As Borgman (1986: 47) and Pitts (1994: 11) have acknowledged, understanding of a phenomenon is gained gradually, through several studies, rather than one major project conducted in isolation. Even when different investigations offer results that are not entirely consistent with one another, this does not, of course, necessarily imply that one or more is untrustworthy. It may be that they simply reflect multiple realities, and, if an appreciation can be gained of the *reasons* behind the variations, this understanding may prove as useful to the reader as the results actually reported. Such an attitude is consistent with what Dervin (1997: 30) considers should be key principles within information-seeking research, namely: "To posit... every contradiction, every inconsistency, every diversity not as an error or extraneous but as fodder for contextual analysis. To ask and re-ask what accounts for this difference or this similarity and to anchor possible answers in time-space conceptualizings."

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APPENDICES

One - Letter to Whitley Bay Headteachers Requesting Data for Use in the Preliminary Survey of Schools

Two - Questionnaires Used in the Preliminary Survey of Schools

Three - Letter to Whitley Bay Headteachers Seeking Permission to Undertake Fieldwork in their Schools

Four - Specification Sheet Outlining Provisional Areas to be Covered by Contextual Data

Five - Sources Consulted When Compiling Contextual Data

Six - Schedule for Focus Group Discussions and Individual Interviews

Seven - Data Collection Sessions Involving Adults

Eight - Data Collection Sessions Involving Youngsters

**APPENDIX ONE - LETTER TO WHITLEY BAY HEADTEACHERS REQUESTING DATA FOR
USE IN THE PRELIMINARY SURVEY OF SCHOOLS**

[Name of Headteacher],
Headteacher,
[Name of school],
[Address of school],
[Postcode].

28th February 1999

Dear [name of Headteacher],

**RESEARCH INTO THE INFORMATION-SEEKING BEHAVIOUR OF WHITLEY BAY SCHOOL
YOUNGSTERS**

I am a postgraduate student engaged in research for a PhD degree at the Department of Information and Library Management in the University of Northumbria. Funding has been provided by the Humanities Research Board of the British Academy, and my work has been officially approved by Mrs. P. Jefferson, Head of School Services in North Tyneside. A copy of her letter of support is included.

My studies are devoted to an examination of the information-seeking behaviour of youngsters in Whitley Bay. I have selected Whitley Bay as the geographical area for my project as I have developed links with the town, as a resident, pupil and teacher. From September 1992 to February 1998 I was employed as a Class Teacher at School X *[true name concealed in this Appendix but stated in actual letter]*. In order to enhance my understanding of the local educational context within which the youngsters operate, I should be grateful if you would complete the enclosed short questionnaire.

Thank you for your assistance.

Yours sincerely,

Andrew K. Shenton, BA, MSc, PGCE.

APPENDIX TWO - QUESTIONNAIRES USED IN THE PRELIMINARY SURVEY OF SCHOOLS

THE FIRST SCHOOLS OF WHITLEY BAY

Please complete this brief questionnaire. Its purpose is to collect background details relating to the schools attended by the youngsters whose information-seeking behaviour is to be investigated within my study.

For questions three, four and six please tick the appropriate boxes.

1) What is your name and job title?

.....

2) What is the name of your school?

.....

3) Does each registration form within the school consist of mixed ability pupils?

[] Yes

[] No. *If no, please describe below how the forms are composed with regard to the youngsters' abilities.*

.....

.....

4) Does each form consist of pupils from the same year group?

[] Yes

[] No. *If no, please describe below how the forms are constructed with regard to the youngsters' ages.*

.....

.....

5) Please indicate the numbers of Year Four pupils going to each of the following middle schools in September 1998.

[] Marden Bridge

[] Wellfield

[] Monkseaton

[] Other

[] Valley Gardens

6) Do you consider this balance to be typical of recent years?

[] Yes

[] No. *If no, please describe below how last year's pattern was different from usual.*

.....

.....

Thank you for your time and help. Please return the questionnaire in the included pre-paid envelope.

THE MIDDLE SCHOOLS OF WHITLEY BAY

Please complete this brief questionnaire. Its purpose is to collect background details relating to the schools attended by the youngsters whose information-seeking behaviour is to be investigated within my study.

For questions three, four, six and eight please tick the appropriate boxes.

1) What is your name and job title?

.....

2) What is the name of your school?

.....

3) Does each registration form within the school consist of mixed ability pupils?

[] Yes

[] No. *If no, please describe below how the forms are composed with regard to the youngsters' abilities.*

.....

.....

4) Does each form consist of pupils from the same year group?

[] Yes

[] No. *If no, please describe below how the forms are constructed with regard to the youngsters' ages.*

.....

.....

5) Please indicate the numbers of Year Five pupils admitted in September 1998 coming from each of the following schools.

[] Appletree Gardens

[] Southridge

[] Coquet Park

[] South Wellfield

[] Langley

[] Whitley Lodge

[] Marine Park

[] Other

[] Rockcliffe

6) Do you consider this balance to be typical of recent years?

[] Yes

[] No. *If no, please describe below how last year's pattern was different from usual.*

.....

.....

.....

7) Please indicate the numbers of Year Eight pupils going to each of the following high schools in September 1998.

- ☐ Monkseaton Community
- ☐ Other
- ☐ Whitley Bay

8) Do you consider this balance to be typical of recent years?

- ☐ Yes
- ☐ No. *If no, please describe below how last year's pattern was different from usual.*
.....
.....
.....

Thank you for your time and help. Please return the questionnaire in the included pre-paid envelope.

THE HIGH SCHOOLS OF WHITLEY BAY

Please complete this brief questionnaire. Its purpose is to collect background details relating to the schools attended by the youngsters whose information-seeking behaviour is to be investigated within my study.

For questions three, four and six please tick the appropriate boxes.

1) What is your name and job title?

.....

2) What is the name of your school?

.....

3) Does each registration form within the school consist of mixed ability pupils?

[] Yes

[] No. *If no, please describe below how the forms are composed with regard to the youngsters' abilities.*

.....

.....

4) Does each form consist of pupils from the same year group?

[] Yes

[] No. *If no, please describe below how the forms are constructed with regard to the youngsters' ages.*

.....

.....

5) Please indicate the numbers of Year Nine pupils admitted in September 1998 coming from each of the following middle schools.

[] Marden Bridge

[] Wellfield

[] Monkseaton

[] Other

[] Valley Gardens

6) Do you consider this balance to be typical of recent years?

[] Yes

[] No. *If no, please describe below how last year's pattern was different from usual.*

.....

.....

Thank you for your time and help. Please return the questionnaire in the included pre-paid envelope.

**APPENDIX THREE - LETTER TO WHITLEY BAY HEADTEACHERS SEEKING PERMISSION TO
UNDERTAKE FIELDWORK IN THEIR SCHOOLS**

[Name of Headteacher],
Headteacher,
[Name of school],
[Address of school],
[Postcode].

10th May 1999

Dear [name of Headteacher],

**RESEARCH INTO THE INFORMATION-SEEKING BEHAVIOUR OF WHITLEY BAY SCHOOL
YOUNGSTERS**

A research student at the University of Northumbria at Newcastle, I wrote to you earlier in the year asking you to complete a short questionnaire relating to your school. Many thanks for providing the information that I requested. You may recall that, in a project approved by the British Academy and North Tyneside's Head of School Services, I am examining the attitudes and behaviour of youngsters with regard to information. In the current phase of the study I am seeking to undertake fieldwork within Whitley Bay schools and should be grateful if you would consider allowing me access to your organisation. The work that I am proposing would consist of two parts.

- a) I should wish to hold focus group discussions and one-to-one interviews with pupils of a range of ages in order to identify their information needs and to examine their information-seeking strategies. I propose to sample only youngsters within one form in each year group and, since the number of pupils involved would be small, there would be no disruption to the education of the majority of youngsters within each form. Either two or three pupils from each of the forms selected would participate in the focus groups and between three and six further pupils in the form would be interviewed individually. No youngster would be involved in both the focus group and one-to-one interview sessions.
- b) I should also require access to appropriate documents within the school, such as your school development plan, the policy statement for the school library and schemes of work for curriculum subjects. These materials would provide a context for and help explain the young people's attitudes and behaviour.

Since the emphasis of my work lies in ascertaining youngsters' perceptions of their information needs and in investigating their own accounts of their information behaviour, no observation of lessons is involved. Anonymity will be given to the participating organisations and any individuals volunteering information. I realise that schools are understandably cautious in allowing "outsiders" direct contact with their pupils. I am, however, an ex-teacher myself, having taught full-time at School X *[true name concealed in this Appendix but stated in actual letter]* between 1992 and 1998, and a current member of the Association of Teachers and Lecturers. Before taking up my teaching post, I received full police clearance to work with young people.

In terms of the timescale for the work, I envisage making my initial visits to schools in June and gathering any information on school policies, etc. between then and the end of term. I do not expect to make

any arrangements for the interviews, however, until the beginning of the new academic year. As far as possible, I intend to foster a reciprocal relationship between any participating schools and myself. In the early stages of the project, I shall offer the schools agreeing to take part copies of my literature reviews outlining the results of past research into the areas addressed by my study. I believe that previous investigations will be of interest to practising teachers. The first of these literature reviews is included and, should you agree to collaborate with me, others will follow. Subsequently, after the fieldwork has taken place, I shall provide further materials to help disseminate my findings.

I should welcome an opportunity to discuss my project further with you. I may be contacted at the following address: Andrew K. Shenton, Department of Information and Library Management, Lipman Building, University of Northumbria, Newcastle upon Tyne, NE1 8ST. My e-mail address is andrew.shenton@unn.ac.uk.

I look forward to hearing from you.

Yours sincerely,

Andrew K. Shenton, BA, MSc, PGCE

**APPENDIX FOUR - SPECIFICATION SHEET OUTLINING PROVISIONAL AREAS TO BE
COVERED BY CONTEXTUAL DATA**

WHITLEY BAY

Nature of area (rural, urban, suburban, etc)

Socio-economic status of inhabitants

Levels of employment/unemployment

Approximate population figures

Ethnic mix

Major sources of income for the area

Information providers within the town and their links with local schools

SCHOOLS

General

Age ranges of pupils within each type of school

[All act within framework imposed by National Curriculum]

[All have passed OFSTED inspections with credit]

For each school

Size

Number of pupils on roll

Number in annual intake

Number of teachers

Geographical location

Position in relation to town

Distance from nearest public library

Performance

Key OFSTED findings

SATs/GCSE/"A" Level results

Information Skills

Profile within the school of Information Skills and information-seeking activities

Strategies for their teaching (e.g. via theme work or in dedicated Information Skills lessons)

Significant themes apparent at a planning level and emerging from policy statements, etc

The school library

Location within school

Member of staff responsible

Size of library (in terms of numbers of volumes)

Types of material stocked

Other facilities available (e.g. computer workstations)

Classification scheme employed

Form(s) of catalogue used

Times of availability to pupils

Miscellaneous

Intake from feeder schools (if appropriate)

Distinctive characteristics of the school

Events in recent history of the school that could impinge on the subject of the fieldwork

APPENDIX FIVE - SOURCES CONSULTED WHEN COMPILING CONTEXTUAL DATA

IN RELATION TO WHITLEY BAY

1991 Census data relating to wards within Whitley Bay

Local telephone directory

Maps of the town centre and the surrounding area

Tourist guides to amenities and events

Local history book devoted to Whitley Bay

IN RELATION TO NORTH TYNESIDE LIBRARY SERVICE

Leaflets available in public libraries within the borough:

“Books on Wheels”

“Library Requests”

“Borrowing Recordings from your Library”

“Local Studies”

“Business Information at your Library”

“Physical Access to Libraries”

“Library Addresses”

“Quieter Times in Libraries”

“Library Opening Hours”

“Storytimes in Libraries”

Subject indexes for children’s and adult collections

Senior Librarian (Information) and West Area Manager (in paired interview)

IN RELATION TO SCHOOLS

General

Council budget statement: 1999/2000

Guide to schools within North Tyneside

Publicity matter from Children and Young People’s [Library] Service

School-specific

School A-1

School prospectus: 1999/2000

OFSTED inspection reports (April 1996 and June 1999)

Curriculum programmes for each year group

Library policy statement

Library development plan

Library subject index

IT and Library Coordinators (in individual interviews)

School C-1

School prospectus: 1998/99

School development plan: 1999/2000

OFSTED inspection report (June 1998)

Post-OFSTED action plan

Schemes of work for all National Curriculum subjects
Library policy statement
Library development plan
Policy for teaching of Information Skills
Structured programme for teaching of Information Skills
Guide to library organisation and resources
Library subject index
Headteacher and Library Coordinator (in individual interviews)

School G-1

School prospectus: 1999
School development plan: 1998/99
OFSTED inspection report (May 1998)
Post-OFSTED action plan
Schemes of work for all National Curriculum subjects
Policy for teaching of Language
Library guide, i.e. a list of the twenty-five classes that make up the classification system
Library accession book
Headteacher and Resources Manager (in individual interviews)
Reception, Year Three and Year Four teachers (in individual interviews)

School C-2

School prospectus: 1998/99
School development plan: 1998/99
OFSTED inspection report (March 1996)
Programmes of study for all National Curriculum subjects
Schemes of work for all curriculum subjects
Library policy statement
Policy for teaching of IT
Guide to the IT room
Displays within the IT room
IT, Library and Literacy Coordinators (in individual interviews)

School D-2

School prospectus: 1999
School development plan: 1997-2000
Staff handbook
Annual reports to governors
OFSTED inspection report (June 1997)
Post-OFSTED action plan

Schemes of work for all curriculum subjects

Library policy statement

Library guide, i.e. a list of the classes that make up the classification system

Policy for teaching of IT

Headteacher (in individual interview)

School B-3

School prospectus: 1999

School Web site

School newsletters

“Sixth Form Courses” brochure

School development plan: 1999/2000

OFSTED inspection report (February 1997)

Post-OFSTED action plan

Schemes of work for all curriculum subjects

Library policy statement

School library annual report: 1998/99

School library development plan: 1999/2000

Headteacher and School Librarian (in individual interviews)

APPENDIX SIX - SCHEDULE FOR FOCUS GROUP DISCUSSIONS AND INDIVIDUAL INTERVIEWS

This schedule provides instructions to the interviewer by indicating general areas to be addressed and, where it was considered important that the same wording be used for a particular question in all the sessions, more specific prompts for informants. Any text shown in italics and inverted commas refers to the actual words to be employed by the researcher.

INTRODUCTION

Indicate that the researcher is seeking to *"find out about young people and their lives"*. Point out that he holds no post within the school and is simply interested in learning about the youngsters' experiences and opinions. Stress that what is to follow is not a test and there are no *"right answers"*. Assure the pupils that the meeting is unrelated to their school work and that any issues raised will not be reported to their teachers on a personal level. Emphasise that honesty is vital.

For each informant, record gender, race, year group and school.

Focus groups only: provide each participant with a name label. Explain that it helps identification during the discussion by ensuring that each knows the name of his or her colleagues.

Show all youngsters the tape recorder, pointing out that its presence demonstrates the importance attached by the investigator to the pupils' ideas.

Add that it also enables him to be *"quite sure of what exactly we've all said"*.

Ascertain that the pupils are happy to allow its use in the session.

1) YOUNG PEOPLE'S INFORMATION NEEDS AND INFORMATION-SEEKING STRATEGIES

First schoolers only: show the picture cards and ask each informant to select his or her favourite. In a focus group situation, each youngster takes a card in turn.

Invite pupils to provide names for the children shown in their pictures.

Explain, *"In your picture, the child is wondering because there's something they need to know about."*

Ask, *"Has that ever happened to you?"*

Request that all youngsters *"Think of a time recently when you needed help, when you needed to decide what to do, when you were worried about something or when you needed to find something out or learn about something, either for school or your own interest."*

It might've been at home, at school or anywhere else."

Ask, *"Could you tell me about what you remember of that time?"*

After completion of each "story", assess whether or not sufficient understanding has been gained of the nature of the need.

If a youngster does not do this of his or her own accord, encourage him or her to describe the action taken in response to the need with the prompt, *"And what did you do about it?"*

While the youngster is giving his or her account, check that the following are covered:

a) the environment in which information-seeking took place;

- b) the channel or resource utilised;
- c) the approach taken, e.g.
 - the manner in which the appropriate material was located in a library;
 - use of the contents lists and/or index when consulting a book;
- d) any problems encountered;
- e) his or her ultimate level of satisfaction with the outcome.

When one need situation and the ensuing information-seeking action have been fully discussed, explore others recently experienced by the informants.

Seek clarification and summarise issues when appropriate. Use member checks to test emerging theories and interpretations.

Focus groups only: if conversation is not forthcoming, ask particular individuals by name to contribute or move from person to person within the group, seeking their ideas.

All youngsters: if the informant cannot think of any situations to fit the information need situations specified, explore his or her interests, hobbies and homework for school. Investigate how these have led to any information-seeking behaviour.

2) YOUNG PEOPLE AND THE TERM, "INFORMATION"

First schoolers only: show the word, "information", on a flashcard. Ask each participant if he or she can read it. If the informant cannot, read it aloud. Inquire if the youngster recognises it. If the person claims to know the word but does not immediately respond with a comment that indicates an understanding of it, request that he or she offers a sentence or phrase that includes it. If the word, "information", is not recognised, explain the concept and resume the dialogue with issue (c) below.

Ask **all youngsters** to draw a picture *"to show what you think we mean by the word"*.

If anybody asks for further guidance, advise him or her simply to *"draw what you think is best"*.

On completion, prompt each pupil with the invitation, *"Tell me about your picture(s)."*

Widen the discussion to include:

- a) what, in words, the informant believes we mean by the term, "information". Ask **first schoolers** to imagine that the researcher is a *"man from Mars"*. How could each of them explain to him the word as he or she conceives it?
- b) any particular connotations or associations it has for the youngster;
- c) sources from which information may be obtained or other means of gaining information.

Summarise issues as appropriate and seek feedback. Also use member checks to test emerging theories and interpretations.

Probe the availability of IT in each informant's home environment, especially the Internet and CD-ROM hardware.

Thank all the individuals for taking part and indicate the value of their ideas and experiences to the researcher.

APPENDIX SEVEN - DATA COLLECTION SESSIONS INVOLVING ADULTS

SCHOOL STAFF

School A-1

- L/A-1/II/12 Dialogue with Library Coordinator, in her classroom on 7th October 1999
IT/A-1/II/19 Dialogue with IT Coordinator, in his classroom on 10th May 2000

School C-1

- HT/C-1/II/1 Dialogue with Headteacher, in her office on 18th June 1999
HT/C-1/II/11 Dialogue with Headteacher, in her office on 6th October 1999
L/C-1/II/16 Dialogue with Library Coordinator, in Nursery on 9th March 2000
HT/C-1/II/17 Dialogue with Headteacher, in her office on 13th March 2000

School G-1

- HT/G-1/II/5 Dialogue with Headteacher, in his office on 8th July 1999
L/G-1/II/6 Dialogue with Resources Manager, in small group room on 8th July 1999
T/G-1/II/13 Dialogue with Year Four teacher, in her classroom on 22nd November 1999
T/G-1/II/14 Dialogue with Reception teacher, in her classroom on 30th November 1999
T/G-1/II/15 Dialogue with Year Three teacher, in her classroom on 30th November 1999

School C-2

- LT/C-2/II/2 Dialogue with Literacy Coordinator, in Headteacher's office on 5th July 1999
IT/C-2/II/8 Dialogue with IT Coordinator, in computer room on 1st October 1999
L/C-2/II/9 Dialogue with Library Coordinator, in computer room on 1st October 1999

School D-2

- HT/D-2/II/7 Dialogue with Headteacher, in his office on 13th July 1999
HT/D-2/II/18 Dialogue with Headteacher, in Classroom One on 12th April 2000

School B-3

- HT/B-3/II/3 Dialogue with Headteacher, in his office on 8th July 1999
L/B-3/II/4 Dialogue with School Librarian, in the library on 8th July 1999
HT/B-3/II/10 Dialogue with Headteacher, in his office on 4th October 1999

LOCAL EDUCATION AUTHORITY STAFF

- I/LEA/II/1 Dialogue with North Tyneside's Senior Inspector of Schools, in his office at Stephenson House on 3rd March 1999

PUBLIC LIBRARY SERVICE STAFF

- L/LIB/PI/1 Paired interview with the Manager of West Area of North Tyneside's library service and the Senior Librarian (Information), in the former's office at North Tyneside Central Library on 19th April 2001

APPENDIX EIGHT - DATA COLLECTION SESSIONS INVOLVING YOUNGSTERS

SCHOOL A-1

| | |
|-----------------|--|
| R-Y2/A-1/FG/11 | Focus group conversation with Audrey (Reception), Nathan (Reception), Anita (Year One), Dean (Year One), Sally (Year Two) and Victor (Year Two), in school library on 9th May 2000 |
| Y3-Y4/A-1/FG/12 | Focus group conversation with Alice (Year Three), Corey (Year Three), Maria (Year Three), Damien (Year Four), Fiona (Year Four) and Will (Year Four), in school library on 10th May 2000 |
| R/A-1/II/108 | Individual interview with Philippa (Reception), in school library on 9th May 2000 |
| R/A-1/II/109 | Individual interview with Beverley (Reception), in school library on 9th May 2000 |
| Y2/A-1/II/110 | Individual interview with Josie (Year Two), in school library on 9th May 2000 |
| Y2/A-1/II/111 | Individual interview with Edgar (Year Two), in school library on 9th May 2000 |
| Y2/A-1/II/112 | Individual interview with Barry (Year Two), in school library on 9th May 2000 |
| Y1/A-1/II/113 | Individual interview with Glenn (Year One), in school library on 9th May 2000 |
| Y3/A-1/II/114 | Individual interview with Olivia (Year Three), in school library on 10th May 2000 |
| Y3/A-1/II/115 | Individual interview with Curtis (Year Three), in school library on 10th May 2000 |
| Y4/A-1/II/116 | Individual interview with Dominic (Year Four), in school library on 10th May 2000 |
| Y4/A-1/II/117 | Individual interview with Sasha (Year Four), in school library on 10th May 2000 |
| Y4/A-1/II/118 | Individual interview with Paula (Year Four), in school library on 10th May 2000 |
| Y1/A-1/II/119 | Individual interview with Maggie (Year One), in school library on 11th May 2000 |
| R/A-1/II/120 | Individual interview with Ryan (Reception), in school library on 11th May 2000 |
| R/A-1/II/121 | Individual interview with Melissa (Reception), in school library on 11th May 2000 |

SCHOOL C-1

| | |
|----------------|--|
| Y3-Y4/C-1/FG/6 | Focus group conversation with Davina (Year Three), Joshua (Year Three), Roger (Year Three), Russell (Year Four), Kylie (Year Four) and Siobhan (Year Four), in Classroom Eight on 9th March 2000 |
| R-Y2/C-1/FG/7 | Focus group conversation with Charlene (Reception), Leo (Reception), Len (Year One), Melody (Year One), Daisy (Year Two) and Nicholas (Year Two), outside Classroom Four on 10th March 2000 |
| Y3/C-1/II/48 | Individual interview with Kenneth (Year Three), outside Classroom Eight on 9th March 2000 |
| Y3/C-1/II/49 | Individual interview with Lynne (Year Three), outside Classroom Eight on 9th March 2000 |
| Y3/C-1/II/50 | Individual interview with Joe (Year Three), outside Classroom Eight on 9th March 2000 |
| Y4/C-1/II/51 | Individual interview with Wes (Year Four), outside Classroom Ten on 9th March 2000 |
| Y4/C-1/II/52 | Individual interview with Joan (Year Four), outside Classroom Ten on 9th March 2000 |
| Y4/C-1/II/53 | Individual interview with Wendy (Year Four), outside Classroom Nine on 10th March 2000 |

| | |
|-------------------|---|
| Y2/C-1/II/54 | Individual interview with Tony (Year Two), outside Classroom Five on 10th March 2000 |
| Y2/C-1/II/55 | Individual interview with Penelope (Year Two), outside Classroom Five on 10th March 2000 |
| Y2/C-1/II/56 | Individual interview with Meredith (Year Two), outside Classroom Five on 13th March 2000 |
| Y1/C-1/II/57 | Individual interview with June (Year One), outside Classroom Four on 13th March 2000 |
| Y1/C-1/II/58 | Individual interview with Gaynor (Year One), outside Classroom Four on 13th March 2000 |
| Y1/C-1/II/59 | Individual interview with Rupert (Year One), outside Classroom Four on 14th March 2000 |
| R/C-1/II/60 | Individual interview with Steven (Reception), outside Classroom One on 14th March 2000 |
| R/C-1/II/61 | Individual interview with Leonie (Reception), outside Classroom One on 14th March 2000 |
| R/C-1/II/62 | Individual interview with Anna (Reception), outside Classroom One on 14th March 2000 |
| SCHOOL G-1 | |
| R-Y2/G-1/FG/1 | Focus group conversation with Chantal (Reception), Elizabeth (Reception), Alan (Year One), Brian (Year One), Alison (Year Two) and Clark (Year Two), in small group room on 22nd November 1999 |
| Y3-Y4/G-1/FG/2 | Focus group conversation with Carol (Year Three) [sister of Judy, Y5/D-2/II/13], John (Year Three), Rod (Year Three), Colin (Year Four), Ian (Year Four) and Vicky (Year Four), in small group room on 22nd November 1999 |
| Y4/G-1/II/1 | Individual interview with Diane (Year Four), in small group room on 30th November 1999 |
| Y4/G-1/II/2 | Individual interview with Christian (Year Four), in small group room on 30th November 1999 |
| Y3/G-1/II/3 | Individual interview with Mary (Year Three), in small group room on 30th November 1999 |
| Y2/G-1/II/4 | Individual interview with Don (Year Two), in small group room on 1st December 1999 |
| Y2/G-1/II/5 | Individual interview with Francesca (Year Two), in small group room on 1st December 1999 |
| Y2/G-1/II/6 | Individual interview with Derek (Year Two), in small group room on 1st December 1999 |
| Y1/G-1/II/7 | Individual interview with Karen (Year One), in small group room on 2nd December 1999 |
| Y1/G-1/II/8 | Individual interview with Gerald (Year One) [brother of Hilary, Y6/D-2/II/18], in small group room on 2nd December 1999 |

Y1/G-1/II/9 Individual interview with Natasha (Year One), in small group room on 2nd December 1999

R/G-1/II/10 Individual interview with Raymond (Reception), in small group room on 2nd December 1999

R/G-1/II/11 Individual interview with Miranda (Reception), in small group room on 2nd December 1999

Y4/G-1/II/22 Individual interview with Barbara (Year Four), in small group room on 12th January 2000

Y3/G-1/II/23 Individual interview with Austin (Year Three), in small group room on 12th January 2000

Y1/G-1/II/24 Individual interview with Gavin (Year One) [brother of Jonty, Y7-Y8/D-2/FG/10, and Suzanne, Y6/D-2/II/21], in small group room on 12th January 2000

R/G-1/II/25 Individual interview with Sean (Reception), in small group room on 12th January 2000

SCHOOL C-2

Y5-Y6/C-2/FG/4 Focus group conversation with Lisa (Year Five), Nancy (Year Five), Tim (Year Five), Malcolm (Year Six) and Sandra (Year Six), in computer room on 17th January 2000

Y7-Y8/C-2/FG/5 Focus group conversation with Charles (Year Seven), Eve (Year Seven), Darren (Year Eight), Pamela (Year Eight) and Patrick (Year Eight), in computer room on 18th January 2000

Y5/C-2/II/26 Individual interview with Larry (Year Five), in computer room on 19th January 2000

Y5/C-2/II/27 Individual interview with Zack (Year Five), in computer room on 19th January 2000

Y5/C-2/II/28 Individual interview with Jeremy (Year Five), in school library on 20th January 2000

Y5/C-2/II/29 Individual interview with Nigel (Year Five), in school library on 20th January 2000

Y6/C-2/II/30 Individual interview with Pauline (Year Six), in computer room on 21st January 2000

Y6/C-2/II/31 Individual interview with Ruth (Year Six), in computer room on 21st January 2000

Y6/C-2/II/32 Individual interview with Cathy (Year Six), in computer room on 24th January 2000

Y6/C-2/II/33 Individual interview with Harvey (Year Six), in computer room on 24th January 2000

Y7/C-2/II/34 Individual interview with May (Year Seven), in computer room on 25th January 2000

Y7/C-2/II/35 Individual interview with Maureen (Year Seven), in computer room on 25th January 2000

Y7/C-2/II/36 Individual interview with Linda (Year Seven), in school library on 26th January 2000

Y7/C-2/II/37 Individual interview with Gail (Year Seven), in school library on 26th January 2000

Y7/C-2/II/38 Individual interview with Clint (Year Seven), in computer room on 27th January 2000

Y7/C-2/II/39 Individual interview with Bill (Year Seven), in computer room on 27th January 2000

Y8/C-2/II/40 Individual interview with Dennis (Year Eight), in school library on 28th January 2000

Y8/C-2/II/41 Individual interview with Eric (Year Eight), in school library on 28th January 2000

Y6/C-2/II/42 Individual interview with Ewan (Year Six), in school library on 31st January 2000

Y7/C-2/II/43 Individual interview with Cameron (Year Seven), in school library on 31st January 2000

Y8/C-2/II/44 Individual interview with Kay (Year Eight), in school library on 1st February 2000

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|-------------------|--|
| Y8/C-2/II/45 | Individual interview with Louise (Year Eight), in school library on 1st February 2000 |
| Y8/C-2/II/46 | Individual interview with Tanya (Year Eight), in school library on 2nd February 2000 |
| Y5/C-2/II/47 | Individual interview with Christine (Year Five), in computer room on 2nd February 2000 |
| SCHOOL D-2 | |
| Y5-Y6/D-2/FG/3 | Focus group conversation with Frank (Year Five) [brother of Lionel, Y8/D-2/II/102], Gillian (Year Five), Bridget (Year Five), Alexandra (Year Six), Rose (Year Six) and Dudley (Year Six), in Classroom One on 7th December 1999 |
| Y7-Y8/D-2/FG/10 | Focus group conversation with Shane (Year Seven), Jonty (Year Seven) [brother of Gavin, Y1/G-1/II/24, and Suzanne, Y6/D-2/II/21], Rick (Year Seven), Francis (Year Eight) and Neville (Year Eight), in Classroom One on 3rd April 2000 |
| Y5/D-2/II/12 | Individual interview with Naomi (Year Five), in Classroom One on 8th December 1999 |
| Y5/D-2/II/13 | Individual interview with Judy (Year Five) [sister of Carol, Y3-Y4/G-1/FG/2], in Classroom One on 9th December 1999 |
| Y5/D-2/II/14 | Individual interview with Vanessa (Year Five), in Classroom One on 9th December 1999 |
| Y5/D-2/II/15 | Individual interview with Madeleine (Year Five), in Classroom One on 10th December 1999 |
| Y6/D-2/II/16 | Individual interview with Candice (Year Six), in Classroom One on 10th December 1999 |
| Y5/D-2/II/17 | Individual interview with Nina (Year Five), in Classroom One on 13th December 1999 |
| Y6/D-2/II/18 | Individual interview with Hilary (Year Six) [sister of Gerald, Y1/G-1/II/8], in Classroom One on 14th December 1999 |
| Y6/D-2/II/19 | Individual interview with Anneka (Year Six), in Classroom One on 14th December 1999 |
| Y6/D-2/II/20 | Individual interview with Helena (Year Six), in Classroom One on 15th December 1999 |
| Y6/D-2/II/21 | Individual interview with Suzanne (Year Six) [sister of Gavin, Y1/G-1/II/24, and Jonty, Y7-Y8/D-2/FG/10], in Classroom One on 15th December 1999 |
| Y7/D-2/II/93 | Individual interview with Douglas (Year Seven), in Classroom One on 7th April 2000 |
| Y7/D-2/II/94 | Individual interview with Dirk (Year Seven), in Classroom One on 7th April 2000 |
| Y7/D-2/II/95 | Individual interview with Kevin (Year Seven), in Classroom One on 10th April 2000 |
| Y7/D-2/II/96 | Individual interview with Kieron (Year Seven), in Classroom One on 10th April 2000 |
| Y7/D-2/II/97 | Individual interview with Andrea (Year Seven), in Classroom One on 11th April 2000 |
| Y8/D-2/II/98 | Individual interview with Rosemary (Year Eight), in Classroom One on 11th April 2000 |
| Y8/D-2/II/99 | Individual interview with Kirsty (Year Eight), in Classroom One on 12th April 2000 |
| Y5/D-2/II/100 | Individual interview with Jim (Year Five), in Classroom One on 12th April 2000 |
| Y5/D-2/II/101 | Individual interview with Isaac (Year Five), in Classroom One on 13th April 2000 |
| Y8/D-2/II/102 | Individual interview with Lionel (Year Eight) [brother of Frank, Y5-Y6/D-2/FG/3], in Classroom One on 13th April 2000 |
| Y8/D-2/II/103 | Individual interview with Louis (Year Eight), in Classroom One on 14th April 2000 |

Y5/D-2/II/104 Individual interview with Piers (Year Five), in Classroom One on 14th April 2000
Y5/D-2/II/105 Individual interview with Alistair (Year Five), in Classroom One on 17th April 2000
Y8/D-2/II/106 Individual interview with Norman (Year Eight), in Classroom One on 17th April 2000
Y8/D-2/II/107 Individual interview with Tracy (Year Eight), in Classroom One on 18th April 2000

SCHOOL B-3

Y9-Y11/B-3/FG/8 Focus group conversation with Ed (Year Nine), Benny (Year Nine), Petra (Year Eleven) and Julia (Year Eleven), in interview room, Sixth Form study area on 31st March 2000
Y12-Y13/B-3/FG/9 Focus group conversation with Clive (Year Twelve), Gareth (Year Twelve), Shirley (Year Twelve), Yvette (Year Twelve), Melvyn (Year Thirteen) and Bradley (Year Thirteen), in interview room, Sixth Form study area on 31st March 2000
Y9/B-3/II/63 Individual interview with Frida (Year Nine), in interview room, Sixth Form study area on 20th March 2000
Y9/B-3/II/64 Individual interview with Bob (Year Nine), in interview room, Sixth Form study area on 20th March 2000
Y12/B-3/II/65 Individual interview with Gus (Year Twelve), in interview room, Sixth Form study area on 20th March 2000
Y12/B-3/II/66 Individual interview with Eileen (Year Twelve), in interview room, Sixth Form study area on 21st March 2000
Y12/B-3/II/67 Individual interview with Joy (Year Twelve), in interview room, Sixth Form study area on 21st March 2000
Y12/B-3/II/68 Individual interview with Clara (Year Twelve), in interview room, Sixth Form study area on 22nd March 2000
Y11/B-3/II/69 Individual interview with Mandy (Year Eleven), in interview room, Sixth Form study area on 22nd March 2000
Y11/B-3/II/70 Individual interview with Jean (Year Eleven), in interview room, Sixth Form study area on 23rd March 2000
Y11/B-3/II/71 Individual interview with Alec (Year Eleven), in interview room, Sixth Form study area on 23rd March 2000
Y10/B-3/II/72 Individual interview with Ross (Year Ten), in interview room, Sixth Form study area on 24th March 2000
Y10/B-3/II/73 Individual interview with Adrian (Year Ten), in interview room, Sixth Form study area on 24th March 2000
Y13/B-3/II/74 Individual interview with Antony (Year Thirteen), in interview room, Sixth Form study area on 27th March 2000
Y13/B-3/II/75 Individual interview with Tessa (Year Thirteen), in interview room, Sixth Form study area on 27th March 2000
Y9/B-3/II/76 Individual interview with Greg (Year Nine), in interview room, Sixth Form study area on 28th March 2000

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|---------------|--|
| Y9/B-3/II/77 | Individual interview with Jeff (Year Nine), in interview room, Sixth Form study area on 28th March 2000 |
| Y9/B-3/II/78 | Individual interview with Lesley (Year Nine), in interview room, Sixth Form study area on 29th March 2000 |
| Y9/B-3/II/79 | Individual interview with Zoe (Year Nine), in interview room, Sixth Form study area on 29th March 2000 |
| Y10/B-3/II/80 | Individual interview with Scarlett (Year Ten), in interview room, Sixth Form study area on 30th March 2000 |
| Y10/B-3/II/81 | Individual interview with Glynis (Year Ten), in interview room, Sixth Form study area on 30th March 2000 |
| Y10/B-3/II/82 | Individual interview with Emily (Year Ten), in interview room, Sixth Form study area on 3rd April 2000 |
| Y10/B-3/II/83 | Individual interview with Keith (Year Ten), in interview room, Sixth Form study area on 3rd April 2000 |
| Y12/B-3/II/84 | Individual interview with Duncan (Year Twelve), in interview room, Sixth Form study area on 4th April 2000 |
| Y12/B-3/II/85 | Individual interview with Harrison (Year Twelve), in interview room, Sixth Form study area on 4th April 2000 |
| Y11/B-3/II/86 | Individual interview with Maurice (Year Eleven), in interview room, Sixth Form study area on 5th April 2000 |
| Y11/B-3/II/87 | Individual interview with Toby (Year Eleven), in interview room, Sixth Form study area on 5th April 2000 |
| Y11/B-3/II/88 | Individual interview with Craig (Year Eleven), in interview room, Sixth Form study area on 6th April 2000 |
| Y13/B-3/II/89 | Individual interview with Michelle (Year Thirteen), in interview room, Sixth Form study area on 6th April 2000 |
| Y13/B-3/II/90 | Individual interview with Liana (Year Thirteen), in interview room, Sixth Form study area on 7th April 2000 |
| Y13/B-3/II/91 | Individual interview with Wayne (Year Thirteen), in interview room, Sixth Form study area on 7th April 2000 |
| Y13/B-3/II/92 | Individual interview with Marcus (Year Thirteen), in interview room, Sixth Form study area on 7th April 2000 |